The SHIPPING WORLD

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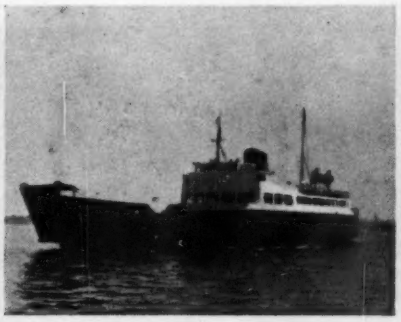

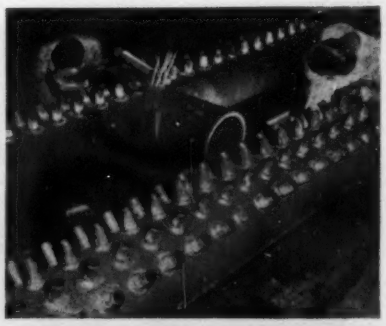

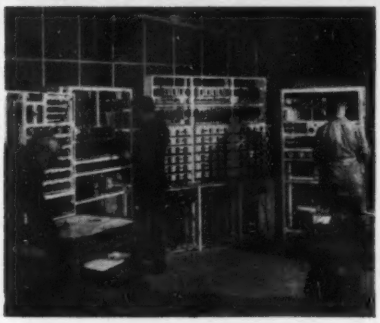

Above: M.V. "Carisbrooke Castle" Passenger/Vehicle Ferry. Built 1959.

Left, top: Preparing a propeller mould.

Left: Wiring Electrical Switchboards.

Right top: Welding power station water tube boiler headers.

Right: Light plate work, ductwork.

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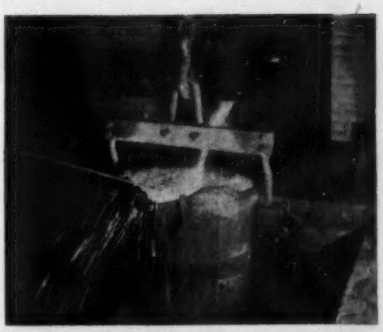
Left: Reblading turbines.

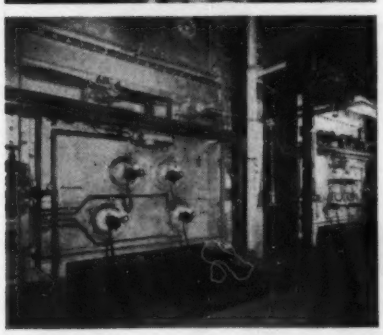
Left, bottom: Oil fuel installation.

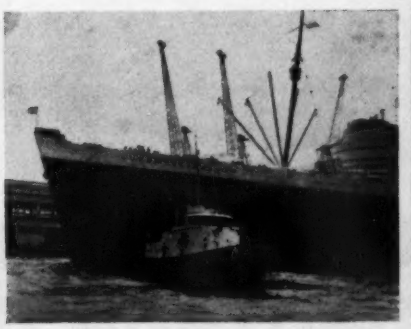
Right: Foundry work, castings.

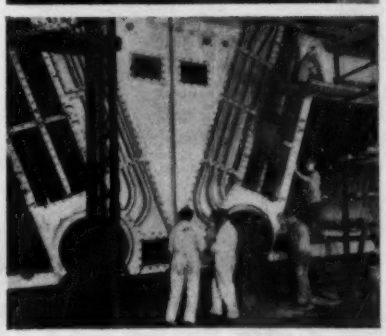
Right, bottom: Boiler construction.

Below: Dockings, repairs, overhauls, conversions—"from the smallest vessels to the world's largest liners."









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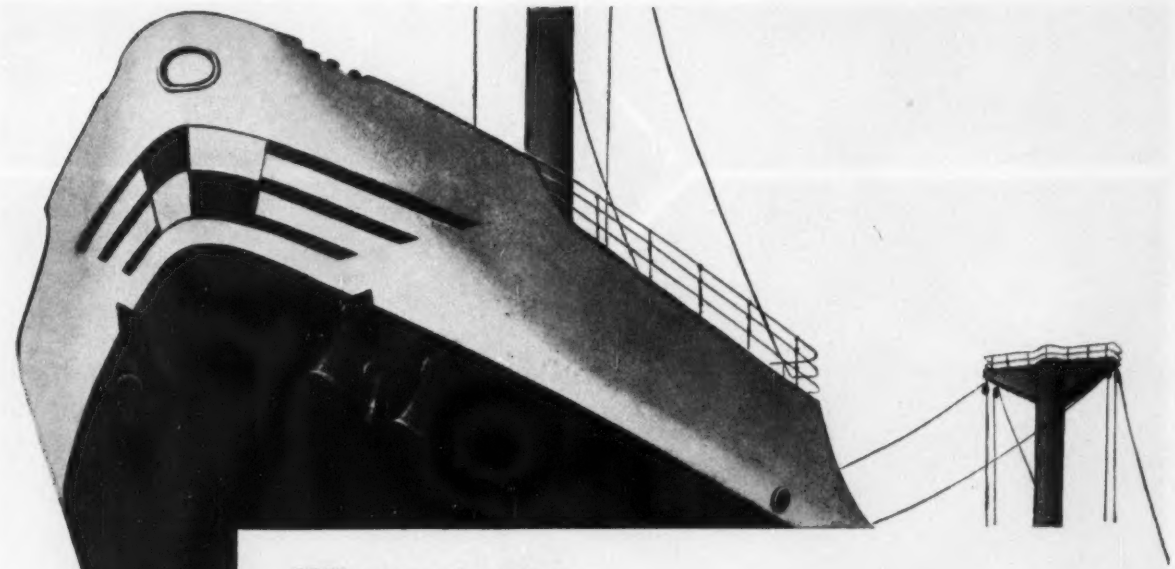

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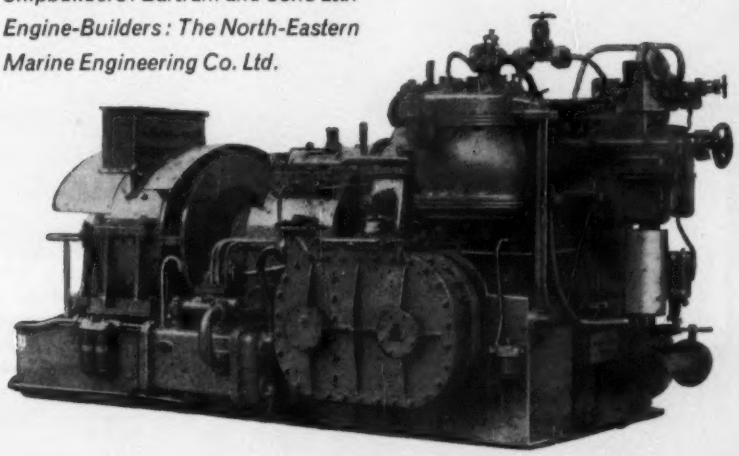
Shipbuilders: Bartram and Sons Ltd.
Engine-Builders: The North-Eastern Marine Engineering Co. Ltd.



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The SHIPPING WORLD AND WORLD SHIPBUILDING

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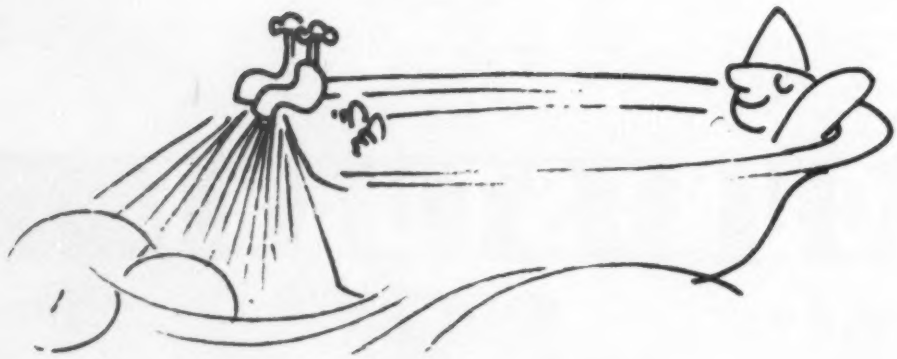
Vol. 144 **8 FEBRUARY 1961** **No. 3522**

40,000 bathrooms cross the Atlantic every week



Sixty-five years ago, a certain transatlantic liner had only one bathroom. Today, liners are more likely to have one for every cabin. Add to that Turkish baths, post-offices, manicurists, and all the trappings of several great palace-type hotels. And hundreds of machines, auxiliary and main, to light, to heat, to propel.

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THE SHIPPING WORLD

AIRPORTS AND SEAPORTS

THERE was a deficiency in the operation of British airports last year amounting to £5.5 mn. None was able to record a surplus. With the object of changing this pattern the Ministry of Aviation, which is the controlling authority for the majority of airfields in this country, including the all-important twin-headed London Airport and Prestwick in Scotland, announced some time ago that landing fees would be increased by 33⅓ per cent on April 1 next. Ever since, the airlines have been up in arms. Shipowners who have had years of training in survival under the pressure of increased charges of this sort of order and often much higher may be excused if they wonder what all the fuss is about. The fuss, in fact, has two main points in its justification. First, it follows a 50 per cent increase in June 1947 and another of 28 per cent just two years ago. And secondly it places landing fees at London and Prestwick far above those in force at any comparable major international airport on the Continent or in the United States.

The peak of the airlines' protest was reached a week or two ago when the director general of IATA, Sir William Hildred, had a personal interview with the Minister of Aviation, Mr Peter Thorneycroft, following earlier correspondence. That this meeting did not achieve the results the Association hoped for is not really surprising. It is not in the Minister's nature to vacillate, nor, as he showed when he was Chancellor of the Exchequer, to bend under pressure. And the decision to raise landing charges by so substantial an amount will not have been one lightly undertaken. To some extent it is in recognition of this state of affairs that the airlines have shifted the burden of their attack from the limited subject of landing fees to the broad issue of airport operation and management. They want British airports to be taken away from the Ministry and handed over to a body or bodies which, with better commercial savvy, could make them pay by other means than the simple expedient of putting up charges.

IATA has urged the immediate creation of an independent authority for the principal U.K. airports, the development of supplementary airport revenues from non-aviation sources (some U.S. airports are said to collect half their total revenues in this way) and "positive measures to attract more traffic to United Kingdom aerodromes". A Parliamentary Select Committee on Estimates has in the meantime begun a full study of the subject and will probably receive this week a memorandum from the Foreign Airlines' Association, which is composed of IATA members operating services in and out of this country. This will probably be followed by further memoranda from BOAC and BEA. Both, in their non-independent situation, may feel a shadow of restraint over their shoulders, but it is BEA which will be the major sufferer.

At the same time pressure is being exerted to take the opportunity of the British Transport Commission shake up to place the railway ports under a system of control which would give the users a greater say in their operation. Both movements are activated partly by the desire to escape from the stultifying influence of control by bureaucracy; the conviction that there is room in both spheres for greater commercial aptitude. So far as the major airports are concerned, at any rate, there is doubtless a good deal of truth in the argument. But it would be quite wrong if the impression gained ground that the airport problem can be solved simply by letting the "commercial boys" loose on the runways.

The aim of making the airports pay their way, in exactly the same way as the seaports must pay their way, is not the outrageous proposition the airlines seem to think it is. An exception should be made in the case of the smaller airfields serving special social needs. But the air subsidies hidden in the airports are no longer justified, particularly at a time when sea services, faced with far higher port costs, are seriously beginning to feel the effects of air competition. Some effort should, however, be made to tackle the problem on an international scale. When the landing fee for a DC-8 can vary from £5 at Los Angeles to the £240 it will amount to at London after April Fool's Day, it does seem high time to return to the front side of the looking glass.

Current Events

New Rules for Radar

ONE of the features of the amendments agreed to the Collision Regulations at last year's Safety of Life at Sea Conference is that they clarify and amplify rather than alter the existing regulations. As a result of this, there is no reason why they should not be acted upon by prudent seamen even before the new convention comes into force, and the Ministry of Transport has done what it can to ensure that this is done by publishing the relevant extracts from the new rules in a Notice to Shipowners, Masters and Navigating Officers. In its introductory paragraphs, this states ". . . a mariner obeying the provisions concerned with radar and navigating in accordance with the guidance offered in the Annex to the new Rules would not thereby in any way contravene the present Regulations; rather, he would comply with them both in letter and in spirit

in a commendable and seamanlike manner." Any navigating officer is bound to act with some regard to the interpretation which the courts are likely to put on his actions in the unlucky event of a collision or other accident. Now that the Ministry of Transport has drawn attention to the changes, it seems certain that any British court would take account of them as being a current definition of what constitutes good seamanship, even before they acquire legal status.

Doxford "P" Engine Licence

IT HAS been announced by Mr Robert Atkinson, managing director of William Doxford & Sons (Engineers) Ltd, that 16 firms have been offered and agreed licence terms for the construction of the "P" type oil engine range from 3,000 bhp to 18,500 bhp. Fourteen of the firms concerned comprise all the British firms who already hold licences to build Doxford engines; the remaining two being the French licence holders, Société des Chantiers & Ateliers de Provence, and the Commonwealth Government Engine Works, Port Melbourne, Australia. Negotiations are proceeding with others from among the remaining eight foreign licensees. Last Tuesday a special Open Day, which was attended by a large number of French shipowners and marine engineers, was held in conjunction with the French licensees. The party was flown to England from Paris by specially chartered Viscounts, and in the morning were shown round the engine room of the Norwegian tanker *Montana* which is powered by the first "P" type Doxford engine. Later in the day the visitors were shown round the Doxford works at Pallion, where they were able to see "P" type engines on test and under construction. One of these engines is a four-cylinder normally aspirated engine destined for the cargo vessel *St. Rosario*, and the other a six-cylinder turbocharged engine of the same size as the *Montana* unit which will be installed later in the *Tudor Prince*. In the evening a dinner was held at the Royal Station Hotel, Newcastle, and on the following morning the French visitors were flown back to Paris.

Careful Arrangements

THE MEETING was extremely well arranged, and considerable care was taken to ensure that the visitors not only saw how the Doxford engine was produced, but that they also enjoyed themselves during their short stay in England. At dinner Mr Robert Atkinson, who has unfortunately resigned his position with the company, made his speech to the guests in French, thus possibly creating a precedent among British engineering firms where there is not always sufficient trouble taken to ensure that foreign visitors understand what is being said at after-dinner speeches. Sometimes, indeed, not even the English-speaking guests understand, and it is pleasing to see so much trouble taken to make non-English speaking guests feel at home. The French have already had considerable experience with Doxford engines built by Société des Chantiers & Ateliers de Provence, who will shortly be building a four-cylinder "P" engine for delivery in 1962. To date there are 28 of these new-type Doxford engines on order; with one exception all will be turbocharged. Here it is interesting to note that all the turbochargers will be supplied by a Swiss firm of engineers, Brown-Boveri & Company. The builders have every reason to be proud of their new engine, which in price and size alone is competitive with any marine oil engine available today, and is the only British designed oil engine capable of high outputs for marine propulsion.

Orders for Cable Ships

FOLLOWING the new order for a cable ship placed by Cable & Wireless Ltd, there are today no less than eight cable ships on order in the world. Three of these are to be built at British shipyards, two in Finland, one in France and two in Germany. Two of the ships on order in Great Britain are for Cable & Wireless Ltd: one of these is the *Retriever*, a cable repair ship of 4,000 grt, and the other the recently-ordered cable-laying ship of 8,000 grt. Both are to be powered by diesel-electric machinery and built by Cammell Laird & Co (Shipbuilders & Engineers) Ltd. The third ship on order in this country is the cable ship *Alert*, 4,000 grt, now under construction for the General Post Office at the Fairfield Shipbuilding & Engineering Co Ltd yard at Govan. In Finland, Wartsila-Koncernen A/B, Helsinki, are building two cable layers of 3,280 dwt for the Russians, which will have British cable handling equipment; and in France, at the Chantiers & Ateliers Augustin Normand, there is one of 4,418 tons, the *Marcel-Bayard*, on order for the French Mail Dept. German shipyards are building two cableships, one of 12,000 dwt at Lubecker Flender-Werke A.G., and the other for the American Telephone & Telegraph Company, at Schlieker Werft, Hamburg. The new 8,000-grt vessel for Cable & Wireless will cost about £1,900,000, and will be the first British cable-laying ship originally designed to lay and handle cables with repeaters.

Radio Telephone System for Seaway

A FURTHER incentive to shipowners to fit their ships with V.H.F. radio telephones comes with the news that a V.H.F. radio telephone system has been installed in the St. Lawrence Seaway. At present it is merely "strongly recommended" that vessels passing through the Seaway should be fitted with V.H.F. equipment. However it has been announced that V.H.F. radio telephones will be compulsory in ships using the Welland Canal in 1962, while the authorities anticipate that this requirement may be extended to cover all sections of the Seaway by them. This requirement may well serve to increase the rate at which ships are fitted. As things are at present the number of ships equipped with V.H.F. R/T is going up steadily, but a little patchily. Some British owners are fitting their fleets one by one as ships become available, while others are still waiting—perhaps until more ports have the necessary shore equipment. The situation is much the same in other European countries, but the Americans are rather lagging behind. This is surprising in view of the general American liking for gadgetry, and the more so as V.H.F. R/T can help to give the quicker turnround in port that the American merchant marine needs if it is to be more competitive.

The Wallingford Story

IN a relatively short time the D.S.I.R. hydraulics research station at Wallingford has gone a very long way indeed—a long way in the actual geographical spread of its activities, and also in the metaphorical sense as a measure of progress. It is a postwar enterprise but already it has established a fine reputation throughout the world. A large extension to the main hall was added only a year or two ago, and the roof had hardly been laid over one of the main wave basins to protect it from rain and frost when work began on a further 80,000 sq ft extension of the main buildings. The enlargements are necessary. For an inescapable demand of what is known as "open" hydraulics research is an extravagant need for space. Complete river and harbour systems, flood areas and the like have to be laid out, and there is a limit to the degree of scaling down which can be imposed without sacrifice to accuracy. The Wallingford story has been partly told in the series of annual reports issued through H.M. Stationery Office. It has now been put into more lively a form by a film made by Film Workshop Ltd for the D.S.I.R. through the agency of the Central Office of Information. The purpose of the film is threefold: to inform branches of the scientific and

technological world associated with hydraulic engineering about the work going on at the research station; to promote the cause of the station among potential clients at home and abroad, civil engineers, industrial organisations, port authorities and so on; and to help in a programme of recruitment of research staff.

Need for Staff

The last of these purposes, according to the director of the station, Mr Fergus Allen, is probably the most important and certainly the most urgent. There is no shortage of work at Wallingford at present. But competition for budding scientists grows more and more intense. In attracting new talent from the universities and technical colleges the film should be a success. With unobtrusive skill, it gives a very good impression of the important and fascinating work that is carried out, the very wide range of skills involved and the sort of equipment used, varying from the extremely simple to highly sensitive and complicated instruments and control equipment. Through a camera operating at Wallingford the audience visits the Mersey, Chittagong, Burnie, Tema and Hong Kong, and something is also shown of field research work in harbours and on beaches. Commentaries have been prepared in half a dozen or more different languages. Hydraulics research can be expensive, with its demands on space, time—the Mersey has been occupying a large area of the main hall for about 3½ years—expert personnel and complicated equipment. But it always carries the attractive prospect that for an expenditure of thousands of pounds, millions may be saved.

A Port for Sale Again

The failure of the shipbreaking venture of Cairnryan port in Loch Ryan within just over a year of its purchase by H. G. Pounds of Portsmouth must be a matter of great disappointment to local interests. Employment expectations were fostered at the time of the sale, not so much by Mr Pounds as by War Office spokesmen and Scottish newspapers. Now the port is up for sale again. It has, as we said before (*SW*, 9.9.59), everything a small port could want—2,000ft of quayage, ample depth of water (there is 33ft at M.L.W.S.), storage space, road and rail connections and sidings, land for development, a lighterage jetty with 17ft alongside, a 60-tons fixed crane and other smaller cranes. "Everything, in fact, except the commercial *raison d'être*." The port is in good shape and would be suitable as an oil terminal, for shipbreaking or for other work of that nature. Stranraer Town Council is to meet to discuss the situation, since the operation of the port on a working basis is regarded as essential to the prosperity of the area. Representations are to be made to various Government bodies involved to see whether any change can be made in the present deadlock. Whether any other bids were received at the time of the sale by the War Office is not known. But it is known that serious inquiries were received from some large and important undertakings. If these did reach the stage of firm offer, there should be some uneasy feelings in the War Office today about the wisdom of the decision reached at the time of the sale. Cairnryan port cost something like £11mn to build as a bold military venture. It is being offered today at the price Mr Pounds paid for it, said to be £250,000.

Funnels for the "France"

The illustration below shows the French Line's new passenger liner *France* as she will appear when completed towards the end of this year. The most novel feature of the ship's external appearance is undoubtedly her funnels. These have wings protruding from either side of each funnel near the top, and the smoke is discharged from the end of each wing and not from the top of the funnel in the normal way. This idea was developed in order to combine effective smoke dispersal with attractive appearance: tests in the Poitiers wind tunnel have apparently proved the former point, while if the ship conforms with the painting reproduced here (and not all ships do live up to the expectations of artists' impressions) the latter point seems equally proved. It is of interest that a similar idea for funnels was investigated in the case of the new P & O-Orient liner *Canberra*. However, it turned out that for this ship the horizontal wings would have had to be too large and expensive, and so the twin-funnel arrangement now fitted was chosen. In the *France* the span of the wings will be 63ft, compared with a height above deck level for the forward funnel of 54ft, and a length and width at deck level of 66ft and 32ft respectively. They are thus quite substantial. With the advent of the winged funnel, yet another has been added to the wide range of funnel designs that has been produced in postwar years to cope with smoke problems. A good proportion of these designs have been quite successful as far as efficiency goes, but on the aesthetic side there has been a wider spread in the success of results.

This artist's impression of the passenger liner "France" as she will appear when completed shows the winged funnels which she is to have. These funnels are the subject of comment above

ON THE "BALTIC"

A SLUGGISH UPWARD TREND

By BALTRADER

WHEN the grain carrying tankers and the large bulk carriers are taken into account, as well as the many warbuilt vessels, owners who operate modern tramps would be glad if there were not quite so many ships in commission. Even when well fixed, the tramp vessel which has cost a lot of money to build seldom covers interest and depreciation at the prevailing levels of freights and running costs. The postwar building of dry cargo ships, although on a large scale, was probably not excessive were it not for two factors: first, the monstrous growth of tonnage during three war years when economics could not be considered; and secondly the overestimate of the world's immediate requirements in transport of oil, causing incursion of tankers into the grain trades. The warbuilt tonnage is gradually disappearing, although it dies slowly. Owners look forward to the time when demand for tankers catches up with supply, one expects in about two years' time. Meanwhile some orders for tankers have been switched to the building of dry cargo ships and tankers are even being converted to carry dry cargo. As things are, it is not surprising that the promised land of real prosperity is generally considered to be some way off in the absence of any unexpected upheaval.

At the same time, even although the general level of freights is lower than it should be there is help to owners in the present tendency of the charter markets, although it is regrettably occasioned, in part, by the misfortune of other people, in this case the population of China, hard hit by the failure of their crops. It really seems as though shipowners would hardly survive were it not for the recurrence of disasters, much as the livelihood of ambulance men and firemen depends upon casualties and conflagrations.

Ample Business Transacted

Looking at the records of charter fixtures in the few weeks of this year there is nothing to complain of in the amount of business done. Apart from dozens of voyage and time charters by the Chinese, not all of them for carrying relief food, there has been a considerable activity in the trans-Atlantic market, especially for grain carriers from the United States to the United Kingdom and also to Italy, Spain and the near Continent. Nevertheless the upward move in freights has been sluggish because of the existence of many ships as well as many cargoes, but there has been some improvement in the Atlantic as well as in the Pacific. The River Plate is firm, not because of very numerous fixtures but by reason of shortage of available tonnage. Gone are the days when many fixtures were arranged every week with coal from the United Kingdom to the Argentine; there are none now. An occasional ship is chartered with coal from Hampton Roads to Montevideo or Buenos Aires, but the vessels committed to the Plate are not enough to supply the homeward market when active. This situation offers owners of tonnage at home ports the opportunity to secure a freight sufficient to make the outward passage in ballast worthwhile. It therefore helps to stiffen the market for loading in North America or outwards from this side.

Marmagoa is another place where tonnage is in good demand; from there improved rates are being paid for ore to Japan and steady rates to Europe. Some months ago demand was lacking in spread, with the result that vessels which were easily fixed from the U.S. Gulf and Atlantic or from Cuba to the Far East were regularly returning all the way in ballast. The distribution of demand at present is far more satisfactory; many ships have in the past few weeks been satisfactorily chartered for employment to follow their voyage to the Far East from ports on both sides of the Atlantic.

The position of the freight markets warrants an attitude of reserve on the part of owners, and it has lately been held by experienced brokers on the Baltic Exchange that owners have been too ready to accept the last rate paid. It is, of course, easy to pronounce unfavourably upon the action of those who have a ship to fix and who find the charterers unwilling to budge; but the present is probably a time when owners would do best for themselves by not fixing in a hurry unless at a more satisfactory rate than last current.

The Freight Markets

Chartering slowed down towards the end of last week, but the reason was not lack of inquiry but reserve on the part of owners. There continues to be a good demand for grain ships to load in North America. The Chinese charterers are still taking vessels on time charter for periods of 4 months up to about 9 months. Australian charterers have taken further tonnage for sugar to the United Kingdom. Further chartering has been arranged for River Plate to Japan.

Fixtures include *Sunvard*, 12,000 dwt, St John or Halifax to picked ports U.K., 45s, February 27/March 12; *Figaro*, 14,000 dwt, St John or Halifax to Hamburg, $4.35, February 25/March 5; *Polycrown*, 9,500 dwt, St John or Halifax to picked ports United Kingdom, 46s 3d, March 3/20; *North Queen*, 10,000 dwt, U.S. Gulf to Genoa, Naples, Leghorn or Civita Vecchia, $7.75, option Adriatic 60 cents extra, February 10/25; *Lynton*, up River Plate to Moji-Tokyo range, 10,000 tons, 66 cu ft grain guaranteed, 97s 6d, March 13/31; *Zermatt*, 10,500 dwt, Nechochea and Bahia Blanca or Mar del Plata to West Italy, 63s wheat, February 15/28; *Constantis*, 9,800 dwt, and *Mary Sophia*, 11,500 dwt, British Columbia-U.S. North Pacific to India 72s 6d, basis West Coast India, wheat, March 1/15 and March 6/27; *Aghia Marina*, 10,400/10,800 dwt, British Columbia to West Coast Italy, $9.75, March 5/20; *Classic*, 10,000 dwt, Mackay, Townsville, Mourilyan to United Kingdom, 100s, sugar, 5,000 tons daily loading, March 10/31; vessel, 9,700 tons, Black Sea to Cuba, £17,000 lump sum f.i.o., combined with Cuba to Black Sea 60s sugar, February 15/28.

Time charter fixtures include *Castledore*, 11,130 dwt, 535,000 cu ft bale, 12 knots on 25/26 tons fuel oil, 24s 6d, trip, delivery off Key West, redelivery Persian Gulf, India or Pakistan, February 13/25; *Woolwich*, 9,978 dwt, 492,149 cu ft bale, 13½ knots on 13 tons fuel oil plus ½ ton diesel, 19s 6d, West African round, delivery Philippeville redelivery U.K.-Continent, February 13/20; vessel, 13,300 dwt, 652,000 cu ft bale, 14/14½ knots on 19 tons fuel oil plus 1½ tons diesel, 22s 3d, 6/9 months, delivery Genoa February 6/20.

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Pacific Cargo Services

NEW BRITISH-FLAG SERVICES IN THE PACIFIC

Four British liner companies have in recent years built tonnage for new cargo services in the Pacific area. The companies, the Blue Star Line Ltd, New Zealand Shipping Co Ltd, Port Line Ltd and Shaw Savill & Albion Co Ltd, formed the Crusader Shipping Co Ltd in 1957 to operate a fast refrigerated service between New Zealand and Japan. The first vessel in this service was purchased from A/B Thorden as a newbuilding at Uddevallavarvet A/B, Sweden. Launched as the *Edith Thorden*, this vessel entered service in December 1957 as the *Crusader*. She was followed in 1958 by a sister ship, the *Saracen*.

In 1959 the companies announced that the service was to be enlarged by the addition of a vessel from each company. Orders for these vessels were placed with Bartram & Sons Ltd, Sunderland, by the New Zealand Shipping Co Ltd and the Blue Star Line Ltd, while Shaw Savill & Albion Co Ltd placed an order with Bremer-Vulkan Schiffbau und Maschinenfabrik, Bremen-Vegesack. These vessels were delivered during last year as *Turakina*, *Canterbury Star* and *Amalric*. The Port Line decided to convert one of their existing ships, the *Port Montreal*, rather than build new tonnage. This vessel entered the Crusader service in 1959.

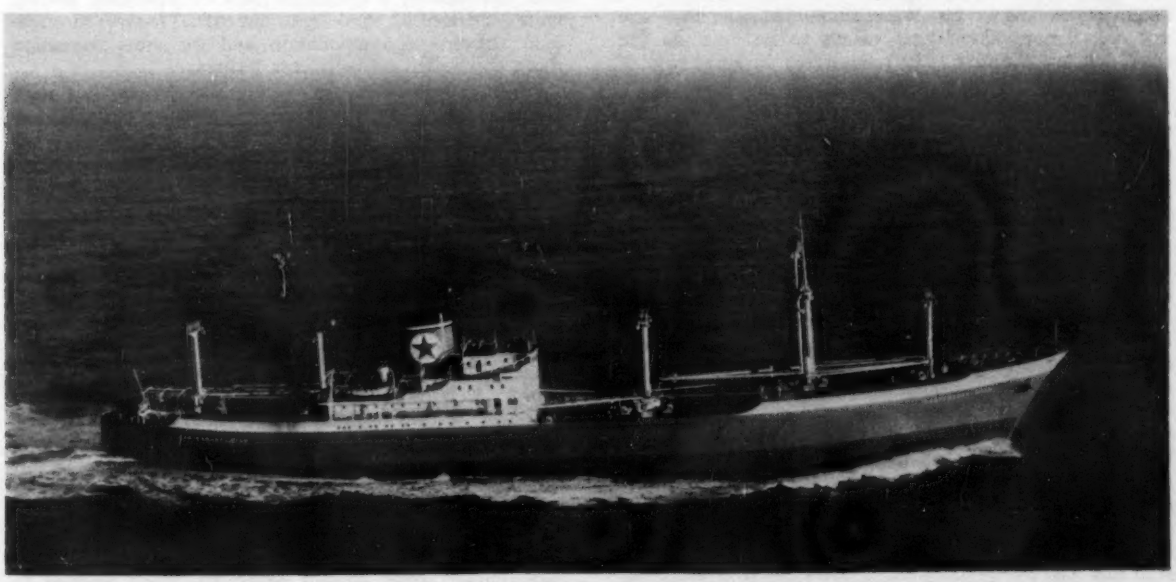
During the early part of 1960 it was decided to use the *Canterbury Star* and *Amalric* on a new service from New Zealand to the West Indies and the West Coast of South America, while the *Port Montreal* and *Turakina* would join *Crusader* and *Saracen* on the New Zealand-Japan service of the Crusader Shipping Co Ltd. The New Zealand-West Indies-West Coast of South America service is run under the auspices of the U.K.-New Zealand Conference Lines, which is made up by the four companies.

Built to Individual Specifications

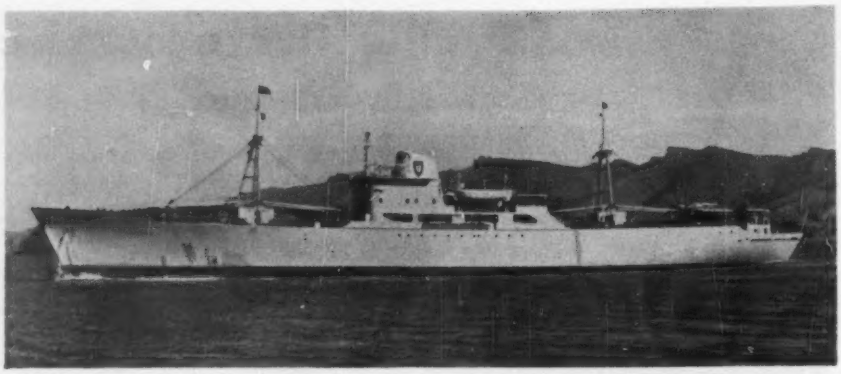
The vessels have been built to the individual owners' requirements and specifications, this being necessary in case they should be transferred to the various companies' other services at some future date. The two vessels built at Bartrams, *Turakina* and *Canterbury Star*, differ considerably in layout and appearance, while the *Canterbury Star* is the larger of the two. The principal difference is that this vessel has three holds forward and one aft of the machinery space, whereas the *Turakina* has two holds forward and two holds aft of the machinery space. The superstructure of the *Canterbury Star* has therefore been placed much further aft than in the *Turakina*. The *Canterbury Star* has been designed with a bow of particularly curved profile and has a very long forecastle. The main superstructure is raised on a long bridge deck which extends practically to the stern, whereas the superstructure of the *Turakina* extends from the rear of No 2 hold to the forward end of No 4 hold. There is a small

PRINCIPAL DETAILS OF VESSELS

	Crusader/ Saracen	*Port Montreal*	*Turakina*	*Canterbury Star*	*Amalric*
Length o.a.	406ft 1in	468ft 10in	455ft	462ft 8½in	457ft 7in
Length b.p.	370ft	440ft	425ft	425ft	427ft 6in
Breadth moulded	53ft 6in	64ft 3in	62ft	63ft	63ft 6in
Depth moulded	38ft	39ft 5in	38ft	38ft	38ft 6in
Draught	20ft 11½in	26ft 9in	28ft 10in	28ft 9in	28ft 3in
Deadweight	3,450 tons	8,251 tons	8,200 tons	8,420 tons	8,686 tons
Gross tonnage	3,338 tons	7,177 tons	7,707 tons	7,539 tons	7,791 tons
Net tonnage	1,130 tons	3,793 tons	3,973 tons	4,140 tons	4,090 tons
Machinery	10-cyl G.V. diesel	7-cyl H & W B & W diesel	8-cyl Sulzer diesel	8 cyl Sulzer diesel	9-cyl M.A.N. diesel
Machinery output	6,250 bhp	7,500 bhp	9,750 bhp	9,750 bhp	10,100 bhp
Service speed	17 knots	16½ knots	17 knots	17 knots	18 knots
Cargo capacity: general	—	163,150 cu ft	58,501 cu ft	88,000 cu ft	68,475 cu ft
refrigerated	220,000 cu ft	304,580 cu ft	334,899 cu ft	349,600 cu ft	343,404 cu ft

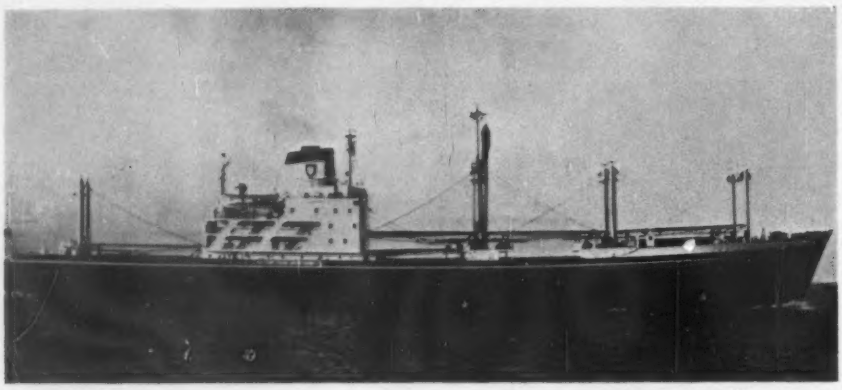


The "Canterbury Star", last of the vessels to be completed



Right: "Crusader", first ship in the fleet of the Crusader Shipping Co Ltd

Below: The German-built "Amalric" for Shaw Savill & Albion Co Ltd



deckhouse right aft. The *Canterbury Star* has been fitted with single derrick posts whereas those on the *Turakina* are twinned. The *Turakina* was fully described in The Shipping World of 28 September 1960.

Description of "Canterbury Star"

The *Canterbury Star*, last of the vessels to be completed, ran trials off the North East Coast on December 21 and achieved a minimum speed of 19.32 knots at 120.7 rpm. This vessel, together with the *Turakina*, are major developments for Wear shipbuilders as they are not only among the fastest vessels to be built on the river, but are the first fully refrigerated cargo vessels of their type to be built on the Wear.

The *Canterbury Star* has been subdivided by six main transverse watertight bulkheads extending to the level of the upper deck. As already stated there are three holds forward and one hold aft of the machinery space, together with their associate tweendecks. In the machinery space, side bunkers with built-in settling tanks extend to the second deck. Two complete decks extend over the whole length of the vessel, while a third deck is arranged in Nos 2 and 3 holds. All of the decks and tweendecks are insulated, except the forecastle tweendeck over No 1 hold where general cargo only is carried. The weather deck hatchways are fitted with MacGregor patent single-pull watertight steel covers, while the lower deck hatchways are fitted with Greer hydro-hatch covers.

Chilled meat lockers have been provided port and starboard in No 2 and 3 upper tweendecks, with space for general cargo at the centre. The deck beams in these compartments have been strengthened for hanging cargoes of meat. The insulation sub-contractors were the Cork Insulation Co Ltd, while the refrigeration was by J. & E. Hall Ltd. The refrigerating machinery room is arranged on the port side of the engineers' flat with the brine room immediately above on the second deck. Insulated provision rooms are arranged on the upper deck forward of the machinery casings on the port side. The steward's bulk store and bonded store are on the starboard side. The double bottom is constructed on the cellular principle longitudinally framed.

Accommodation for the ship's company of a very high standard has been provided in a long bridge deckhouse on the upper deck, surmounted by a three-tier deckhouse. Deck and engineer officers and petty officers each have a separate single-berth cabin while ratings and catering staff have two-berth cabins. Separate toilet facilities have been provided for each department. A mess room and a recreation room have been provided for the crew, together with a separate petty officers' mess. The captain and chief engineer each have a suite comprising dayroom, bedroom and bathroom. Public rooms comprise a spacious dining room to seat 20 persons and a smoking room. The crew accommodation is mechanically heated and ventilated by a combined plant incorporating heating units connected by trunking to directional louvres throughout. Officers' accommodation and the crew recreation room are heated by convector heaters.

Cargo is handled by six 5-tons, two 10-tons and eight 3-tons tubular steel derricks. In addition a 30-tons derrick is arranged to serve No 2 hatch. The derricks are operated by fourteen 3-tons Thrige electric winches, while the 30-tons derrick is served by two 5-tons winches.

The propelling machinery of the *Canterbury Star* comprises a turbocharged Clark/Sulzer type RD 76 reversible marine oil engine of the crosshead type driving a single screw, and arranged to operate on heavy marine fuel oil, there are eight cylinders, each 670mm and 1,550mm stroke, designed to develop 10,400 bhp at 119 rpm. In service, at 117 rpm, the corresponding rating is 9,750 bhp. The propeller is of Nikalium manufactured by the Manganese Bronze & Brass Co Ltd. Steam is generated by one Clarkson vertical thimbletube oil-fired boiler and one Clarkson vertical thimbletube exhaust gas boiler. The boilers are each designed to operate at 49 lb/sq in but have scantlings for 100 lb/sq in. The main generators comprise three diesel-driven units, each of 350 kW output, at 220 volts DC. The prime movers for the main generators are three Ruston & Hornsby type 6 VEBXZ turbocharged diesel engines which are direct coupled to a Harland & Wolff open type marine generator.

Steam Turbine Design and Operation*

PROBLEMS OF DESIGN AND MOST SUITABLE MANNER OF OPERATION

By A. F. Veitch

It is not to be expected that there can be such radical design changes as to effect major improvements in performance at this late stage in the development of steam turbines, where we are operating on the flat portion of the curve of the law of diminishing returns. The designer now finds he has to tax his ingenuity to the utmost in attempting to obtain a 1 per cent improvement in turbine efficiency, and, even so, in cases where this can be achieved, it has to be very carefully weighed in the balance against increased costs, resulting from either changes in material or departures from present manufacturing techniques or a combination of both.

It is perhaps relevant to point out that the most striking changes in designs for land turbines, compared with those produced about 10 years ago, result directly from the increased powers for which they are now designed, the change being from 60 MW to 500 MW in the case of turbo-generators for central power stations. The operating costs of such large installations, with steam flows of some 3,000,000 lb. of steam per hour, justify the adoption of higher steam conditions and the added complications, together with the special material requirements to utilise them to the utmost degree. By comparison, the power requirements of turbines for marine propulsion for merchant ships have increased but slightly—the average set now being of about 13,000 shp as against 8,000 shp about eight years ago. This trend, which is still continuing, has been accompanied by a rise in average steam conditions of from 500 lb/sq in gauge, 800 deg F, to 600 lb/sq in gauge 900 deg F.

Prototype Set for 22,000 shp

The turbines for a set of machinery for 22,000 shp now being constructed, incorporating all PAMETRADA'S latest and most up-to-date features, will commence a most comprehensive programme of full-scale shore trials about the beginning of 1962.

* Abstracts of a paper read to the North-East Coast Institution of Engineers & Shipbuilders on 27 January 1961. Mr. A. F. Veitch is on the staff of PAMETRADA.

The table below outlines the main requirements for which the design was produced.

Maximum and normal power	22,000 shp
Nozzle groups	16,500 shp uncontrolled 19,250 shp controlled and 22,000 shp controlled.
Steam pressure at inlet	800 lb/sq in
Steam temperature at inlet	1,035 deg F
Condenser vacuum	28.5in Hg
Main shaft speed	108 rpm
Astern power	13,200 shp
Steam pressure at astern inlet	795 lb/sq in
Steam temperature at astern inlet	935 deg F

Fig. 1 shows a section through the HP turbine, the major design details being as follows:—

Power	11,440 shp (52 per cent)
Speed at maximum power	5,557 rpm
Critical speed	Maximum rpm + 30 per cent
Number of stages	12 impulse
Blade heights	0.80in to 2.00in
Partial admission stages	Nos. 1—5 inclusive
Minimum arc of admission	55.5 per cent
Blade speed at mean diameter	474 to 595ft/sec
Bearing centres	74.8in
Journal bearings	6.5in diameter × 2.25in length, thin wall type
Weight	9 tons

It will be noted that a two-row HP astern Curtis wheel is overhung from the rotor, thus conforming with PAMETRADA standard practice. The rotor material is of ½ per cent Cr Mo V steel.

The first four rows of blading incorporate shrouding integral with the blades, tied in batches by a rectangle strip which also forms a radial seal and is secured in a groove machined in the shrouding, by means of axial rivets. The integral shroud con-

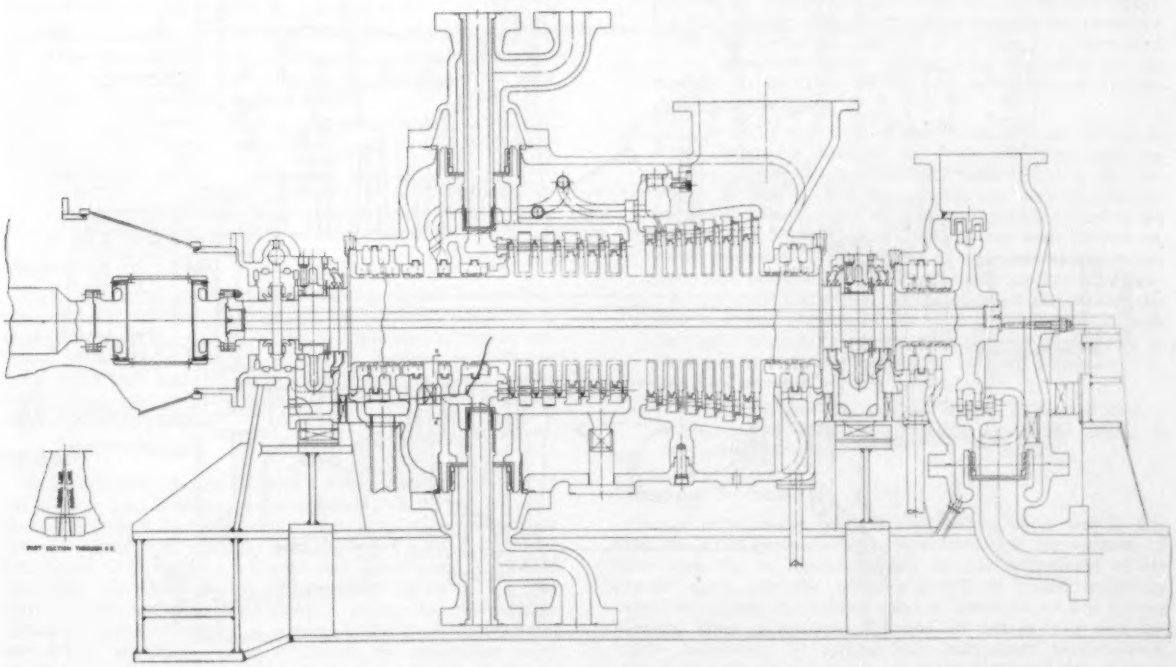


FIG 1. Prototype HP turbine for steam at 800 lb/sq in, 1,035 deg F, for set of 22,000 ship machinery

struction dispenses with the usual practice of tenon riveting, which cannot be carried out successfully on the special blading materials required for these stages. All other blading is fitted with shrouding bands of the usual riveted-on type, an understrip being incorporated which forms an axial and radial seal. The first two diaphragms are of all-welded construction. Diaphragms for stages 4—12 are of PAMETRADA standard brazed segmental type. All shaft and diaphragm glands are of the balanced spring-backed type, the fins being integral with the rotor.

In view of the high steam conditions, very special attention has been given to the design of the cylinder in order to allow freedom for expansion and to minimise distortion effects. A double-casing type of construction has been adopted, the inner inlet end cylinder casing carrying stages 1—6 being a casting in 0.5 per cent Mo V steel. The exhaust cylinder is a 0.5 per cent Mo steel casting, as also is the outer cylinder.

Use of Vertical Keys

A suitable arrangement of support palms and keys is used for the support and alignment of the inner to outer casing and for bearing pedestal to outer casing and support girder. An unusual feature is the two radially-tapered type vertical keys which maintain alignment between the high temperature aft end inner casing, outer casing and bearing pedestal, the design of which permits the safe use of small working clearances between mating faces. Inlet steam connections to the inner and astern casings utilise sleeves with piston ring seals, thus allowing for differential expansion in a radial direction.

Ahead steam is admitted through four uncontrolled nozzle groups, equally spaced around the pitch circle, in addition to a controlled group situated on the vertical centre-line in both top and bottom halves. This disposition of the nozzles provides even heating round the circumference of the inner cylinder, thus minimising distortion effects which might otherwise occur when operating with steam at such a high temperature.

With distortion in mind, another feature has been adopted—the gland steam connection at the inlet end inner cylinder is led to an intermediate stage in the exhaust end inner cylinder, which ensures a flow of reduced temperature steam into the first pocket and prevents high temperature steam washing the end wall at the inlet end of the outer cylinder.

Fig. 2 shows a longitudinal section through the LP turbine, for which the following data apply:—

Power	10,560 shp (48 per cent)
Speed at maximum power	3,658 rpm
Critical speed	Maximum rpm + 30 per cent
Number of stages	5 impulse + 4 reaction
Blade heights	1.9 to 1.55in
Blade speed at mean diam.	657 to 825ft/sec
Bearing centres	103⅝in
Journal bearings	9.5in diameter × 3.25in length thin-wall type
Weight	22 tons

With the exception of the incorporation of a sleeve and piston-ring type of construction in the astern steam inlet, the design is very similar to that of the current PAMETRADA single-flow LP turbine. However, the higher rotational speed and consequent increased stresses in blades, blade roots, lock-ups, etc., has resulted in some refinements being required in those items in order to maintain normal safety factors.

The embodiment of all the foregoing features has resulted in a turbine non-bleed steam rate of 5.16 lb/shp-hr, the equivalent heat consumption being 4⅜ per cent better than the current design. This improvement is accompanied by an increase in turbine weight of only 1½ tons, which in view of the great difference in the initial steam conditions, is extremely satisfactory.

Operation of Main Propulsion Steam Turbines

No matter what care has been taken by the designer in attempting to cater for varying requirements and consequent transient conditions encountered in service, it is always pos-

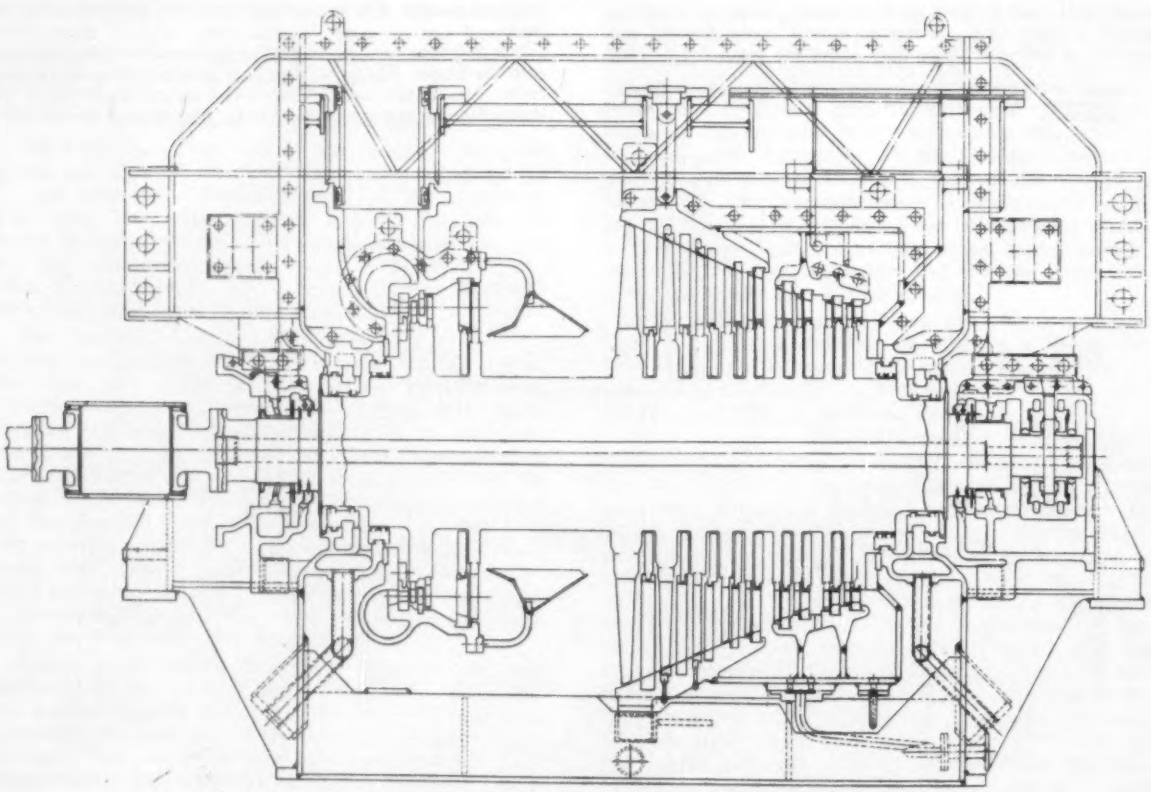


FIG 2. Prototype LP turbine for set of 22,000 ship machinery

sible to subject the turbines to a combination of temperatures for which they were not designed. This possibility is increased with the continued trend of increase in steam conditions. This being so, it will be appreciated that the best operational technique will be one which achieves the desired purpose of subjecting the various parts of the turbines to minimum thermal gradients and thermal shock, particularly when manoeuvring and warming through.

One of the principal requirements in an efficient turbine design is to preserve the internal axial and radial clearances between stationary and moving parts during all conditions of operation. To enable this to be achieved it is essential to adopt a correct handling routine.

Warming Through

This should present no difficulties provided that the correct procedure is followed, which assumes the incorporation of a by-pass valve in way of the manoeuvring valve, thus permitting a desired quantity of steam to enter the turbine via the nozzles, without the use of gland steam, and therefore before raising vacuum until the turbines have reached their target temperatures. The turbines may be considered to be sufficiently warmed through when the inlet end of the LP turbine reaches approximately 180 deg F, or alternatively when the temperature of the LP exhaust casing begins to rise, and the bypass valve should be so adjusted to achieve this in 20 to 30 minutes. A small quantity of astern steam should also be admitted for a period of about five minutes. The use of gland steam for warming-through is to be deprecated, as it causes a local heating in way of the glands and possibly at the top of the end of the casing. The desirability of warming-through by the nozzles by means of a bypass valve, and the necessity for the continuous use of the turning gear, cannot be over emphasised.

The above conditions having been met, gland steam should then be turned on such that a pressure of about ½ lb/sq in is obtained in the sealing pockets, following which the vacuum should be raised to about 15in Hg and the turning gear disconnected.

As soon as the turning gear is taken out, the ahead manoeuvring valve should be opened just enough to admit sufficient steam to start the turbine rolling. It should then be quickly closed, and a similar procedure adopted for the astern turbine. This sequence of ahead and astern rotation should be repeated every three to five minutes during which time the vacuum should be raised, and when 25in Hg is reached the engines may be reported ready to obey telegraph instructions.

Standby Preparatory to Getting under Way

1. The turbines to be kept warm by continuing to rotate the rotor alternatively ahead and astern, as already described. If this is not done distortion of the casing or rotor may ensue as a result of unequal heating.
2. Adjust the drain valves on the manoeuvring valves and casing so that they are cracked open in case of further condensation
3. Check the lubricating oil pressure and temperature at all bearings. The temperature at outlet from the oil cooler should be about 110 deg F when warming up. .

Working Up

Close all drains and gradually build up to full power. The time required to attain full power varies considerably, being dependent upon the size of set. Large units should require upwards of an hour, whereas 15 to 20 minutes is sufficient for a small high speed unit. However, if the superheater outlet temperature rises rapidly with increase in power, build-up should be more gradual.

At Sea

Regular checks should be made of the complete lubricating oil systems, and it should be ascertained that the astern valve be tightly closed. In the interest of fuel economy where nozzle control valves or an overload bypass valve are fitted, it is preferable to have them so adjusted that a minimum degree of throttling takes place across the manoeuvring valve. For the same reason, care should be taken to ensure that controllable speed auxiliary machinery is run no faster than is necessary, and efforts should be made to control the circulating water quantity so that under-cooling of the condensate does not occur.

Manoeuvring and Astern Running

Before commencing to manoeuvre, turbine drains should be opened and particular attention should be paid to the drainage of the gland steam supply pipes following a long steady run. It is important that the rate of opening of the manoeuvring valves should not be unduly rapid, in order to avoid carry-over of water from the steam drum. For all normal astern manoeuvres, the astern steam pressure need not exceed half that of the normal ahead figure. It is also advisable to reduce the steam temperature before commencing to manoeuvre.

Crash Stop

In the event of a call for "Full Astern" when proceeding at normal full speed ahead, the following procedure is considered to give the best stopping effect on the ship:—

1. Close ahead manoeuvring valve as quickly as possible.
2. Open astern manoeuvring valve fairly smartly to give one-third boiler pressure at the astern receiver. If the isolating valve is shut, the manoeuvring valve should be cracked open first, then the isolating valve opened and the manoeuvring valve suitably adjusted.
3. Maintain pressure of about one-third boiler pressure until the shaft is nearly stopped, then further open the manoeuvring valve as necessary to get shaft going astern without appreciable pause.
4. Work up to full astern pressure as quickly as boiler steam permits.

When Finished with Engines

1. Close manoeuvring valves and open turbine drains.
2. Engage turning gear and rotate continuously. Should this not be permitted, turn the shaft a fraction of a revolution every 15 minutes, lengthening the intervals as cooling-off proceeds. The use of turning gear, while having many obvious advantages, is of particular value in that it ensures it being possible to use the machinery again with safety in an emergency that might occur a short time after "Finished with main engines".
3. Following engagement of the turning gear, shut down the gland sealing system ejectors and extraction pumps.
4. Open manoeuvring valve drains and check that turbine drains are open. There is little to be said on the necessity for continuing to run the main circulating pump, but the practice of PAMETRADA has been to run at slow speed for half an hour after the maximum temperature measured at the LP turbine has dropped to 200 deg F, as measured at the ahead or astern turbine inlet depending on the design and direction of the last movement of engines during manoeuvring.
5. It is essential to maintain the lubricating oil service in order to remove residual heat from the rotors until the bearing-oil temperatures indicate that there is no rise above 180 deg F. This temperature can only be checked by temporarily shutting off and then quickly restoring the lubricating oil. Although 180 deg F has been mentioned, some discretion is required in this matter, as it depends upon the position of the thermometer pocket. The relation between the actual temperature at the whitemetal face and that obtained from such an arrangement is in fact quite unpredictable. The cooling-down process can be hastened by reducing the bearing inlet oil temperature as much as possible.
6. When not in use the turbines should be turned over a half revolution daily, thus ensuring a constant change in the resting position.

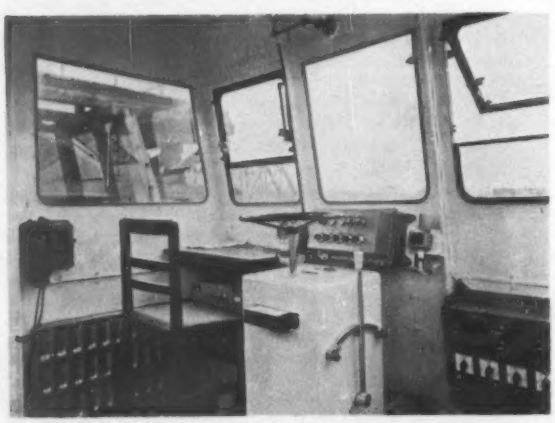
Emergency Procedure

Should it be known that the ship will be under way in less than about six hours, it is recommended that the vacuum of 15in—20in Hg be maintained by suitable adjustment of air ejector steam, and the turbines should be blown round by steam or rotated by turning gear at intervals of five to ten minutes. Once under way a period of half-an-hour and upwards, dependent on turbine size and steam temperatures, should be spent at low power, in order to ensure even heating of the rotors.

New Tilbury Ferries

REPLACEMENT VESSELS WITH VOITH-SCHNEIDER PROPULSION

THE MOTOR FERRY *Catherine* was handed over last week to British Railways, Eastern Region, by Whites Shipyard (Southampton) Ltd. She is the first of three vessels, the others being *Edith* and *Rose*, built to replace the old ferries of the same names which maintain the passenger service between Gravesend and Tilbury. These old ferries were built by A. W. Robertson & Co, London, between 1901 and 1911. They are to be withdrawn by the end of April. The preliminary design for the new ferries was prepared by the Shipping & International Services Department, British Transport Commission, in conjunction with the Continental Traffic & Shipping Manager, Eastern Region. It provides for the use of a Voith-Schneider propeller. Of steel construction, the ferries' principal details are:



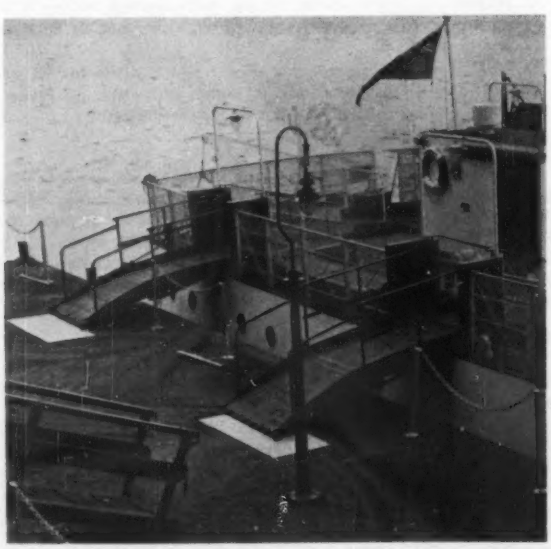
The wheelhouse, showing the controls for propeller direction and pitch

Length o.a.	110ft
Length b.p.	105ft
Breadth, moulded	27ft
Depth to upper deck	11ft 6in
Draught, loaded	4ft 6in
Speed	9 knots
Gross tonnage	213.74 tons
Passenger complement	475
Crew	4

Fixed seating accommodation has been provided for 202 persons—136 in two separate lounges on the lower deck and 66 on the open deck. Of particular interest are the six gangways, three at each side, fitted for rapid embarkation and disembarkation of passengers. These gangways are of hinged folding type, hydraulically operated and controlled from the bridge. They were designed by MacGregor & Co (N.A.) Ltd in conjunction with Lockheed Precision Products Ltd.

In order to minimise the effects of rust and corrosion, extensive use has been made of plastic covering for hand rails and wire guards.

The propelling machinery of the *Catherine* comprises a six-cylinder Lister Blackstone uni-directional diesel engine, type ER6M, developing 300 bhp at 66 rpm, driving a Voith-Schneider cycloidal propeller manufactured by Brown Brothers of Edinburgh. The combined speed and steering control pedestal is fitted in the wheelhouse, and the manoeuvring of the vessel is therefore under the direct control of the master.



The hydraulically-operated gangways

NEWS FROM OVERSEAS

From THE SHIPPING WORLD'S Own Correspondents

American Shipping Problems

JOINT ACTION by maritime labour and management to save an American shipping industry on the verge of destruction has been urged by a maritime industry spokesman. Ralph E. Casey, president of the American Merchant Marine Institute, noted that recent statements of American union leaders indicated growing awareness of the industry's precarious condition, and said, "I, for one, believe that the time has come for leaders of management and labour in the maritime industry to sit down together and discuss ways and means by which a cooperative effort might improve the entire picture. What is really needed in this industry is an end to the political bickering between the unions themselves. If they continue to wage war, with us in the middle, they will ultimately destroy the American merchant marine and with it the livelihood of their own members."

It is reported that the Federal Maritime Board is having little success in persuading five American steamship lines to withdraw the resignations they have submitted to several steamship conferences. The companies in question, American Export Lines, American President Lines, Lykes Bros. Steamship Co, the Prudential Steamship Corporation, and the Waterman Steamship Corporation, maintain that "unfair practices" have been condoned to their disadvantage by the Swiss North Atlantic Freight Conference, and the West Coast of Italy, Sicilian and Adriatic Ports/North Atlantic Range Conference, and say that their resignations cannot be withdrawn until concrete evidence is presented to show that successful corrective action has been taken.

Chinese Chartering of Japanese Ships

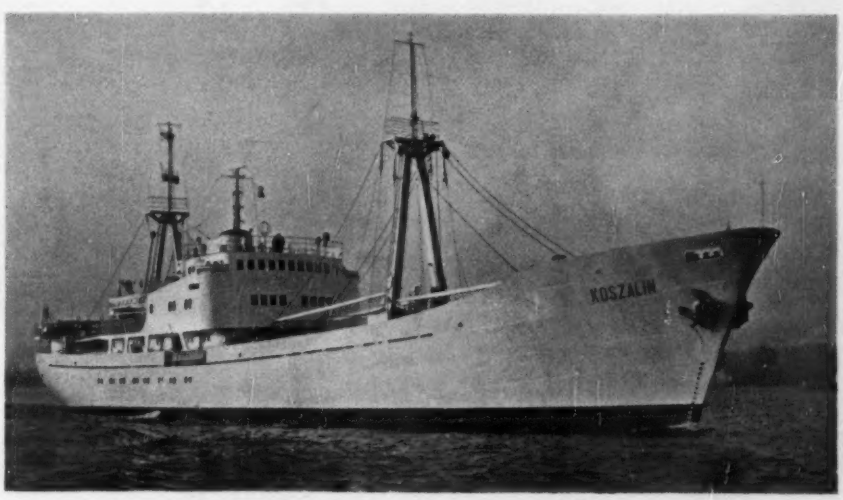
JAPANESE shipowners reacted cautiously to inquiries from China for charter tonnage, said to be needed mainly for lifting grain and other foodstuffs from Australia to China. The inquiries, made through the Japan-India Trade Promotion Association, followed reports of famine conditions in China, and of Chinese inquiries on the London tramp market for 250,000 grt of ships, with the possibility of another 200,000 grt. They were stated to be for vessels of about 7,000 grt or over, and the emphasis appeared to be on quick delivery. The need for urgency could give Japanese shipowners an advantage in chartering because of the possibilities for quicker delivery. However, the tonnage required may not be available in Japan for various reasons. Among them are possible bunkering and other difficulties such vessels might encounter at U.S. ports later, and the lack of any great surplus in ships of the type desired. Some circles feel that special effort should be made to meet the Chinese inquiry as it may pave the way to an improvement in Sino-Japanese relations. The Japan-China Trade Promotion Association is said to have left further negotiation to individual shipping companies. Nissho Kisen and Daiichi Chuo Kisen, two firms with long experience in operating Japan-China services, were reported to be nearing agreement on terms for a number of vessels.

Shipping Management Changes in Japan

SENIOR EXECUTIVE staff changes in N.Y.K. and the Nippon Oil Tanker Company have followed similar shake-ups in the management of several other leading Japanese shipping companies, resulting in the promotion of younger men. The N.Y.K. president, Mr Shinsuke Asao, a highly respected figure in the industry, is to assume the newly-created post of board chairman. He is being replaced as president by the present vice-president, Mr Tadayasu Kodama. The managing director, Mr Yoshiya Ariyoshi, has been promoted to vice-president, and the general sales manager, Mr Shojiro Kikuchi, becomes managing director. The former Vice-Minister of Transportation, Mr Mokuji Araki, has been elected president of Nippon Oil Tanker to replace the late Mr Michiyo Matsuda.

In recent months Yamashita Kisen and Daido Kaiun have carried out similar reshuffles, and, much earlier, O.S.K. and Mitsui did the same. Mr Asao is also president of the Japan Shipowners' Association. Like him, most of the other replaced executives have had the responsibility of rebuilding Japan's merchant fleet and shipping services from virtually nothing after the war to the present total of over 6,000,000 grt engaged in world-wide operations.

TURNOVER during 1960 in Israel's main port, Haifa, totalled 2,677,000 tons (2,427,000 tons in 1959). Not included in these figures are oil and ships' supplies. Cargo discharged amounted to 1,674,000 tons and cargo loaded 1,003,000 tons. Ship arrivals numbered 1,191 of 2,477,000 nrt. The total cargo handled at all Israeli ports in 1960 was 3,214,000 tons, against 2,974,000 tons in 1959.



LATEST POLISH-BUILT CARGO SHIP

The new Polish Ocean Lines' vessel "Koszalin", 1,590 dwt, recently arrived at Hull on her maiden voyage from Gdynia. She is a sister ship of the "Wolin", both of which have been specially designed for the Poland/U.K. trade. The vessel has refrigerated holds and has first class accommodation for eight passengers. These two vessels, together with the "Jaroslav Dabrowski", will be used to ensure a regular weekly service in co-operation with the United Baltic Corporation

Oil Topics

ANALYSIS OF TANKER TONNAGE

THE latest six-monthly analysis of world tanker tonnage by Davies & Newman Ltd shows that the world total of tanker tonnage (500 grt and over) afloat on 1 January 1961 stood at 66,931,293 dwt, a net increase of about 1,300,000 dwt during the last half of 1960. During this period, 79 new tankers of 7,000 dwt and over were launched, aggregating about 2,811,000 dwt. Fifty-one of these new vessels were of 30,000 dwt or greater, and the average deadweight of all tankers launched was almost 35,600 tons. Thus during 1960, 162 new vessels were launched with a total deadweight of about 5,653,000 tons. The increased rate of break-up noted during 1959 and the first half of 1960 continued into the second half of the year, and during this latter period 105 vessels totalling about 1,356,000 dwt were sold for scrap (including 27 T2s) and a further 11 vessels totalling about 183,000 dwt were sold for conversion to dry-cargo vessels (5 more T2s were included in this figure). During 1960, therefore, a total of 202 vessels of about 2,692,000 dwt, including 55 T2s, were sold for scrap or conversion.

Distribution by Flag

THE ANALYSIS of tonnage by flags shows that the Greek fleet continues to expand at the expense of the Liberian total, the former having increased by a further 572,000 dwt, while the latter shows a decrease of about 354,000 dwt. Although almost 900,000 dwt was added to the British-flag fleet, the net increase during the past six months has been only about 7,000 tons. This is due in the main to a very big scrapping programme by major oil companies, and of the total tonnage sold for scrapping and conversion during the last half year, about 757,000 tons was British. Apart from the Greek flag, other major increases in fleets were: Norwegian—about 273,000 tons, French—about 169,000 tons, Swedish—about 158,000 tons, and Japanese—about 151,000 tons. The major oil companies' scrapping programme was largely responsible for the reduction of about 230,000 tons in the Dutch fleet. Prewar tonnage now forms 3.9 per cent of the world total deadweight, warbuilt tonnage 13.7 per cent, tonnage built between 1946 and 1955 (inclusive) 34.4 per cent, and tonnage built between 1956 and 1960 (inclusive) 48.0 per cent. The corresponding percentages for the four largest fleets are as follows:—

	Prewar	*Warbuilt*	*1946-1955*	*1956-1960*
Liberian	2.0	8.6	28.9	60.5
British	2.3	8.8	41.4	47.5
Norwegian	3.3	3.3	49.4	44.0
U.S.A.	2.8	62.6	17.6	27.0

Newbuilding contracts have fallen by a further 2,700,000 dwt since July 1, and the total is now just over 13,600,000 dwt. Of the 316 vessels still to be launched only 28 are in the 18,000/19,999 dwt class, compared with 59 of 30,000/39,999 tons, and 189 of 40,000 tons or larger. German yards now have 17 per cent of the total contracts, Japanese yards 17 per cent, British 16.3 per cent, and Swedish 15.5 per cent.

WORLD TANKER TONNAGE BY AGE GROUPS

(including Whale Oil Factories)

Flag		*Prior to 1935*	*1935-1939*	*1940-1945*	*1946-1950*	*1951-1955*	*1956-1960*	*Totals*	*Grand Total*
LIBERIAN	Steam	20,705	111,563	961,754	644,157	2,431,739	6,685,164	10,855,082	11,652,868
	Diesel	31,080	72,395	33,952	50,135	241,899	368,325	797,786	
BRITISH	Steam	81,692	4,041	675,713	437,285	1,401,191	4,241,182	6,841,104	10,994,023
	Diesel	27,912	145,177	286,414	980,930	1,728,120	984,366	4,152,919	
NORWEGIAN	Steam	40,550	3,670	127,114	7,047	191,682	1,238,047	1,608,110	10,112,034
	Diesel	62,874	226,075	209,754	1,305,594	3,487,417	3,212,210	8,503,924	
U.S.A.	Steam	71,137	68,565	3,570,511	323,731	892,843	1,880,155	6,806,942	6,992,312
	Diesel	46,028	9,805	106,404	8,355	7,425	7,353	185,370	
PANAMANIAN	Steam	39,989	38,508	771,021	555,635	349,160	1,383,152	3,137,465	3,666,815
	Diesel	46,589	27,330	94,298	57,701	213,491	89,941	529,350	
FRENCH	Steam	14,332	—	286,852	49,073	443,644	884,030	1,677,931	3,161,874
	Diesel	8,328	43,218	50,728	180,116	578,850	622,703	1,483,943	
ITALIAN	Steam	3,855	—	446,379	—	312,622	1,142,867	1,905,723	2,870,849
	Diesel	113,147	73,493	93,026	72,303	490,185	122,972	965,126	
SWEDISH	Steam	—	—	—	—	26,355	249,005	275,360	2,600,516
	Diesel	10,460	52,081	118,473	152,421	840,756	1,150,965	2,325,156	
JAPANESE	Steam	—	22,921	133,970	67,471	323,098	732,770	1,280,230	2,556,956
	Diesel	27,198	32,617	80,942	85,566	296,261	754,142	1,276,726	
GREEK	Steam	32,032	12,960	235,712	—	188,703	1,273,721	1,743,128	2,097,361
	Diesel	22,644	28,750	5,950	31,119	109,890	155,880	354,233	
DUTCH	Steam	3,159	8,700	116,385	—	344,840	866,510	1,339,594	2,010,565
	Diesel	14,500	63,737	52,013	74,646	190,073	276,002	670,971	
DANISH	Steam	—	—	—	—	—	148,545	148,545	1,412,401
	Diesel	17,585	—	31,025	85,115	472,106	658,025	1,263,856	
OTHER FLAGS	Steam	333,689	78,326	274,805	174,191	348,921	1,567,419	2,777,351	6,802,719
	Diesel	319,118	92,073	392,173	448,500	1,309,584	1,463,920	4,025,368	
TOTALS	Steam	641,140	349,254	7,600,216	2,258,590	7,254,798	22,292,567	40,396,565	—
	Diesel	747,463	866,751	1,555,152	3,532,501	9,966,057	9,866,804	26,534,728	—
Grand Totals for each period		1,388,603	1,216,005	9,155,368	5,791,091	17,220,855	32,159,371	—	66,931 293

TANKER TONNAGE ON ORDER

(Figures shown are tons deadweight)

Country of Build

Flag	Germany	Japan	Gt. Britain	Sweden	Holland	France	Norway	Denmark	U.S.A.	Italy	Elsewhere	Totals
British ...	562,000	217,500	1,964,000	572,500	177,500	75,500	—	—	—	—	—	3,569,000
Norwegian ...	247,000	—	194,500	730,250	—	76,500	749,500	150,000	—	—	—	2,147,750
Japanese	—	706,000	—	—	—	—	—	—	—	—	—	706,000
Swedish	—	—	—	438,000	—	113,000	—	—	—	—	—	551,000
French	—	—	—	—	48,000	458,500	—	—	—	—	—	506,500
German	415,000	—	—	—	—	—	—	—	—	—	—	415,000
Dutch	—	—	—	—	289,000	—	—	—	—	—	—	289,000
American	—	—	—	—	—	—	—	—	288,000	—	—	288,000
Danish	—	—	—	—	—	—	—	148,000	—	—	—	148,000
Italian	—	—	—	—	—	—	—	—	—	115,000	—	115,000
Other Flags ...	1,095,500	1,386,500	64,200	367,500	676,500	121,500	—	350,500	205,000	48,000	569,000	4,884,200
	2,319,500	2,310,000	2,222,700	2,108,250	1,191,000	845,000	749,500	648,500	493,000	163,000	569,000	13,619,450

The Boeing 727

NEW AMERICAN SHORT-RANGE JET AIRLINER

By D. M. Brace

WHEN a new airliner is announced it is news; but when the announcement of the new machine coincides with another stating that orders for 80 aircraft have been signed, then the news grows in interest. That was the case a few weeks ago when the Boeing Airplane Company released the first details of its new Model 727 short-range jet airliner, and at the same time disclosed that two American operators, Eastern Air Lines and United Air Lines, had each ordered 40 of these machines; the contract was valued at $350 million.

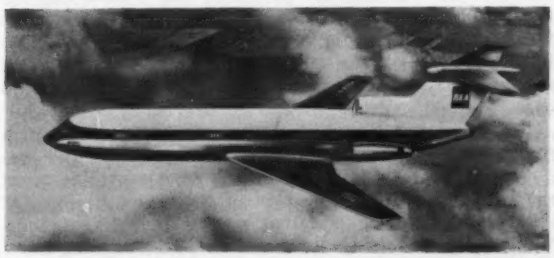
The Boeing 727 is to be a three-engined aircraft capable of carrying from 70 to 114 passengers at cruising speeds ranging from 550 to 600 mph. The engines, three Pratt & Whitney turbofan units, each of 14,000 lb thrust, are to be installed in the tail—one on each side of the rear fuselage, and the third in the fuselage with an air duct leading to it from the base of the vertical fin. To anyone who has taken even the slightest interest in airliner developments over the past few years it will be obvious that this new Boeing product very closely resembles the de Havilland Trident now being built for British European Airways. Both aircraft have been designed to operate over the same types of routes; both have about the same passenger capacity; and both have a three-engined tail lay-out.

Design work on the new Boeing started about 4½ years ago, and by August 1959 some 65 different configurations had been studied. At that point the company were still thinking in terms of a small jet either with four underwing podded engines, or two engines aft-mounted as with the French-built Caravelle. After further consideration, including a lengthy survey to determine the lowest operating costs for operations over short/medium range routes, the company came to the conclusion that a twin- or three-engined machine offered the best solution.

Airliners' Requirements

The manufacturers then went to a number of the leading U.S. airlines to get their ideas on the type of aircraft which they would need for the routes of 500-1,700 miles. From these discussions the Boeing Company was able to crystallise its ideas on the size of aircraft required, and the desired performance. Nearly three months were spent in these discussions with the airlines, and on 18 September 1959 the basic design for the Boeing 727 was "frozen". It was decided that much of the fuselage of the bigger 707 family of jets could be used, except that both doors and windows would be bigger. The actual lay-out of the engines was, however, still under consideration. Designs were considered for a V-tail machine another with a twin-fin arrangement, and another with two engine pods under the wings, and the third pod at the tail. Eventually the decision was taken to install the three engines in the tail, in the form seen in the accompanying photograph. One great advantage of the engine lay-out adopted is that it will be possible to keep the centre engine running to provide air-conditioning and electrical power, even while loading and unloading is going on, at the short stopovers planned.

Smallest by quite a considerable margin of the jet airliners being offered by American manufacturers, the



An artist's impression of the Boeing 727 (below) and one of the de Havilland Trident (left)

Boeing 727 will have a maximum gross weight of 142,000 lb (compared with about 312,000 lb of the biggest of the 707 models). The wingspan will be 108ft; the fuselage will be 114ft 4in long, and the fuselage width will be 12ft 4in, allowing six-abreast seating in tourist-class configuration. The fuselage depth of 12ft 8in will leave space for two cargo compartments, one forward and the other aft of the wing, having a total capacity of 800 cu ft.

Structurally, the Model 727 will be generally similar to the other Boeing jets. The primary wing structure will be of aluminium alloy skin, stiffened by stringers. The wing will be an aeroelastic structure, giving a smoother ride in rough weather, and also preventing undue strain being put on the main structure when passing through turbulent conditions. The inter-spar volume of the wing is sealed to provide integral fuel tanks. One novel safety feature will be that the fuel lines from the tanks to the engines will run outside the fuselage wall at cabin floor level, being covered and protected by a streamlined fairing.

Aerodynamically the 727 will draw heavily on Boeing's experience with their 707 fleet. The wing, which will have a 32 degree sweepback, will have low-speed performance built into it by means of high-lift devices. These will consist of triple-slotted trailing-edge flaps, and leading-edge flaps and slats. The slats will extend forward and down from the upper leading edge of the wing at low speeds, forming a slot. In cruising flight the slats will be retracted on to the wing, giving a clean, high-speed leading edge.

The tail fin and rudder are swept sharply aft to give the control surfaces maximum effect for minimum size and weight. A ventral fin is fitted to provide a positive indication of the maximum rotation of the aeroplane for the shortest take-off distance. This, of course, is the design feature now being built into all 707s following the Air Registration Board's insistence on its inclusion in British-owned machines.

The Boeing 727's control system will differ from that of earlier Boeing jet airliners by incorporating changes indicated by experience with its forerunners. The Boeing 707 series now in service depend on aerodynamic boost to power ailerons and elevators and a combined aerodynamic and hydraulic boost for the rudder. The new machine will use the same aerodynamic actuation in the elevator and aileron controls, with dual hydraulic power units assisting with control surface movement at all ranges of travel. The rudder will be controlled through dual hydraulic power units. It will be possible to control the aircraft manually, with no assistance from the hydraulic system, should that ever be necessary.

Low Operating Costs

It is believed that the Boeing 727 will offer very low costs on a per-mile basis—a most important factor for any airline. Low costs of operation are particularly important when an aircraft is being used over short-range routes where terminal costs are necessarily high owing to the proportionately large number of take-offs and landings that the aircraft must make in comparison with the big long-range machines. The average direct cost of flying the 727 on a 500-mile flight will be in the region of $1.50 per mile.

It is expected that the purchase of materials for the first Boeing 727 will commence next month. The first aircraft is expected to leave the production line by the late summer of 1962, and the first aircraft should fly in the autumn of 1962. Nearly the whole of the following year will be devoted to flight testing; a minimum of three aircraft will be used for this work. The first aircraft to both Eastern and United Airlines is expected to be delivered either towards the end of 1963, or at the beginning of 1964.

For some considerable time senior officials in the airline business have been prophesying a spending spree on short-haul jet equipment somewhat similar to that of two or three years ago when one airline after another placed contracts for long-range jet airliners. To meet this anticipated demand—incidentally, a demand that could conceivably eventually reach a total of 600 or more aircraft—a number of manufacturers have indicated their interest in producing new machines.

British Competitors

This country, in addition to offering the de Havilland Trident, which was the first short-medium range jet for which a firm order was placed (BEA are to have 24), has at least two other short-range jets on the drawing board. They are the Avro 771 and the British Aircraft Corporation 107. As the Boeing 727 and the Trident are strikingly similar in appearance, so, too, are these two British projects. They would each be capable of carrying about 60 economy-class passengers; each would be fitted with two Bristol-Siddeley BS.75 engines, one on each side at the rear of the fuselage. This engine has remarkable economy; in fact its economics are almost as good as the turbo-prop engine for short-range operations. Both the Avro 771 and the BAC-707 could be considered as jet replacements for the larger versions of the Viscount. They would, however, offer considerably higher productivity and 50 per cent more speed than that famous aeroplane. The BAC would be slightly the larger aircraft. Its length of 84ft would be four feet greater than that of the Avro machine, and its wing-span would also be some 4ft more. On the other hand the maximum take-off weight of the Avro 771, at 52,000 lb, would be 3,500 lb more than that of the BAC-107. The cruising speed of the Avro product would be about 495 knots and that of the BAC machine about 440 knots. It is understood that both manufacturers are offering these machines to potential customers at "less than £500,000 each", and that deliveries in 1964 are being promised.

But no matter how many types of aircraft the British manufacturing industry is able to offer it will still undoubtedly have to meet the fiercest of competition from the United States. In the case of the recent Boeing 727 contract it is understood that one of the airlines is to "sell back" to Boeings a number of piston-engined DC-7 aircraft. Presumably the Boeing company has no allusions about reselling those aircraft—nobody wants to buy piston-engine airliners today—so one can only assume that transaction was undertaken by Boeings purely in order to obtain the order. It is difficult to imagine that any British manufacturer would be capable of offering a similar "sprat", even though the 1959 amalgamations of the U.K. industry did produce far bigger organisations with considerably greater capital backing. One encouraging rumour that has recently been circulating is that another big United States operator, American Airlines, is very interested in the Trident. It is believed that delivery schedules are one of the major drawbacks at the moment to negotiations reaching an advanced stage. It may well be that BEA will be asked to forego some of their machines towards the beginning of the production line in order to secure this order, valuable both in money and prestige.

Mr Peter Thorneycroft, Minister of Aviation, has decided that from April 1 London Airport shall be called London (Heathrow) Airport, and Gatwick shall be known as London (Gatwick) Airport. No change will be made in the radio call signs. The announcement said the Minister's decision was made because of the growth of traffic and the two airports' increasing interdependence.

Air Transport Section

Air Charter Market

FLUCTUATIONS IN JANUARY

By a Special Correspondent

LONDON'S air charter brokers had little time to ponder on the past and the future as 1961 opened: whether the year ahead would bring them better fortune than had been shown in 1960 seemed temporarily too much of a theoretical matter, as day-to-day affairs were moving very briskly. In any case, perhaps the brokers were then too elated to have undertaken a sober survey of the market situation. However, the hopeful early days of 1961 were not to last, and January ended by producing market conditions that can most aptly be described as being "bumpy". The active early period was followed by a week or so of quieter conditions; there then came a few days of more substantial business, and the month ended on a dull tone.

The spurt in activity that signalled the beginning of 1961 operations on London's air charter market gained its impetus in fact during the last days of 1960. Immediately the Christmas holiday was over, inquiries began flowing rapidly on to the market, although not much firm business was concluded. Just before Christmas potential charterers had been held up by their inability to find aircraft, so much equipment having been booked earlier for seasonal work. The aircraft availability position changed somewhat after the holiday, although much equipment was becoming occupied with winter holiday traffic.

It was the tangible results of the explorative and preparatory work put in during the last few days of 1960 that accounted for much of the business concluded in early January. Lambert Brothers Ltd reported that practically all the fixtures for ships' crew transfers were on the Far East route, which towards the end of the previous year was having a rather thin time. The aircraft availability position had improved, particularly as far as four-engined equipment was concerned. This was largely due to the easing of the recent heavy demand for prompt *ad hoc* flights by operators whose own aircraft were being employed in the Congo area.

Patchy and Sluggish

By the end of the first week of January things had quietened considerably. No section of the market merited particular attention, and what inquiry there was proved patchy and sluggish. Even in the ships' crew section the majority of inquiries were for the movement of medium-to-small groups of seamen, not the easiest of loads to fix, and some difficulty was experienced on the Far East route in finding aircraft space for these smaller groups. If charterers had been a little more generous in their ideas of rates, some aircraft might have been fixed to transport livestock and fresh meat. Suitable aircraft were in good supply but operators just could not afford to engage their equipment in such work at the rates the inquirers were prepared to pay.

Conditions on the market livened up during the third week of January, with the short-haul section contributing greatly to the improved situation. There were still some quiet periods but, as Lambert's stated, there was "a distinct improvement in the general feel of the market and the extremely dull conditions of the previous week were fortunately not repeated". Operators had plenty of aircraft at their disposal to meet the increased inquiry for prompt short-haul movements, and most potential charterers were satisfied. The picture in the Far East section was, however, not so good, particularly for those seeking transport outwards from the United Kingdom and Europe. A large number of aircraft, already stemmed eastbound, were requiring homeward loads, and so operators understandably were not anxious to place more of their aircraft in the Far East.

In contrast with its opening days, January closed on a quiet note—in fact conditions were described as "dull and featureless". There was only a trickle of fresh inquiry on to the market, and no section could claim any distinction for its activity, with the possible exception of the ships' crew section. What interest there was in the ships' crew section was mainly in the westbound movement of crews from Hong Kong and Tokyo during the middle and end of February. Most of the groups consisted of about 30 seamen.

Airlines' Charter Work

The growing interest of the national scheduled airlines in charter operations, which help to keep some of their jet-displaced piston-engined aircraft active, has been mentioned frequently in this column. Further evidence of this has been made available recently in the provisional figures released by some airlines of their operations in 1960. KLM Royal Dutch Airlines, for example, stated that their charter division continued to "display intense activity". This airline executed more than 1,000 passenger charter flights during the year, and this is apart from 180 cargo charters. Much of this passenger charter work being undertaken by the scheduled airlines is the transport of specialised groups across the North Atlantic. The International Air Transport Association announced in January that they would be surprised if the number of passengers transported across the North Atlantic on air charter flights in 1960 did not exceed 300,000. If the final figures should exempt IATA from experiencing astonishment, it means that people carried on trans-Atlantic charter flights have increased by not far short of 100 per cent in one year, as the figure for 1959 was about 172,000 passengers.

A new operator's name is likely to appear in the charter field in the near future, and in an aspect of charter activity that up till now has received little attention. The name is McAlpine Aviation, the business flying division of the large civil engineering contractors, Sir Robert McAlpine & Sons Ltd. The company have applied for an air operators' certificate to carry out charter flights for businessmen in a hurry. If successful in their application McAlpine Aviation, whose base is at Luton Airport, will employ four-seater Cessna 310 and six to eight-seater Piaggio P166 executive aircraft on this specialised charter work. Some people believe that it will not be long before most large British companies have their own executive aircraft, but for those companies that cannot justify employing their own aircraft but occasionally have need for one there seems scope for organisations such as McAlpine Aviation. There are attempts currently being made to keep Croydon Airport open for this very purpose.

Among recent air charter fixtures reported by Lambert Brothers are: Britannia, ship's crew, Hong Kong/London; DC6A, aero engines, Manchester/New York; Viking, passengers, London/Amsterdam/London; Comet, ship's crew, London/Hong Kong; Argonaut, passengers, Zurich/Meknes/Teneriffe/Meknes/Geneva/Basle; DC3, machinery, Zurich/London; York, bullion, London/Zurich, and Viking, V.I.P.s, London/Antwerp and return.

NEW CONTRACTS

Shipowners	No. of Ships	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Delivery	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Milford Haven owners	4	Trawlers	—	115	—	—	Diesel	—	—	Atlantic S.B. Co
Cable & Wireless	1	Cable layer	(8,000)	466 × 58.5	1962	16	Diesel-electric	—	English Electric Co	Cammell Laird & Co
Overseas Yards										
Phs. van Ommeren	2	Cargo	12,500/14,500	—	—	—	Sulzer diesel	6,600	Shipbuilders	Kon. Mij "De Schelde"
United States Lines	6	Cargo	10,714	(560.5) × 75 × (28.5)	—	20	Geared turbine	—	—	Bethlehem Steel Co, Quincy
Kon. Nederlandsche Stoom Mij.	1	Cargo	7,100	423 × 57.5 × 31.25	1962	16.25	Diesel	4,900	Gebr. Stork	C. van der Giessen & Zonen
Scheep. Mij. "Triton"	2	Bulk carriers	18,000	525 × 72 × 43	1962/63	—	Diesel	—	Gebr. Stork	C. van der Giessen & Zonen
U.S.S.R.	6	Cargo	4,400	—	1962/63	—	—	—	—	Rumanian yards
U.S.S.R.	30	River craft	2,000	—	1963/65	—	—	—	—	Rumanian yards

LAUNCHES

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Dec. 6	BP Tanker Co	— (148)	Tug	(40)	—	—	Diesel	—	—	Dorset Lake Shipyard, Poole
Jan. 18	Dilmun Nav. Co	*Alfaris* (1210)	Tanker	(300)	—	—	Diesel	—	—	James Cook & Co (Wivenhoe)
Jan. 18	Govt. of Sierra Leone	*Naboi* (894)	Tug	(54)	—	—	Diesel	—	—	Rowhedge Iron Works
Jan. 30	Sig. Bergesen	*Tindfonn* (1597)	Tanker	47,200	715 × 98 × 52.5	15.75	Geared turbine	16,000	Shipbuilders	Harland & Wolff, Belfast
Jan. 31	Clan Line Steamers	*Clan McNab* (497)	Cargo	10,600 (8,500)	463 × 61.5 × 38(26.58)	15.75	6-cyl Doxford diesel	6,400	Wallsend Slipway	Greenock Dockyard
Feb. 1	Elder Dempster Lines	*Deido*	Cargo	9,500	430 × 63 × 38.5(26.1)	14	4-cyl Doxford diesel	5,700	Shipbuilders	Scott's S.B. Co
Overseas Yards										
—	U.S.S.R.	*Svanetia*	Train ferry	—	—	—	Diesel	—	—	Krasnoye Sormova Shipyard, Gorki
Dec. 30	Govt. of Indonesia	*Tomako* (145002)	Cargo	2,300 (3,235)	282.2(315.25) × 47.58 × 26.95(14.58)	12	6-cyl diesel	1,800	Sulzer	Stocznia Szczecinska
Jan. 17	A. C. Olsen (Skips A/S Spervik)	*Husvik* (139)	Tanker	11,500 (8,000)	452 × 61 × 34(27)	14.5	Diesel	5,830	Burmeister & Wain	Moss Vaerft & Dokk
Jan. 18	Cia. Nacional de Nav. Costeira	*Princessa Isabel* (104)	Pass. cargo	(9,500)	433 × 61 × 27.2(18)	17.5	Tw.-scr. B & W diesel	9,200	Shipbuilders	Soc. Espanola de Const. Nav.
Jan. 21	Petroleo Brasileiro	*Taquipe* (159)	Tanker	10,000 (6,900)	410 × 62 × (30.75)	12.7 (T)	7-cyl diesel	3,500	Burmeister & Wain	Odense S.B. Co
Jan. 21	Skips A/S Awilco (Anders Wilhelmsen)	*Wilchief* (196)	Tanker	19,000 (12,400)	560 × 69.75 × 39.67(30.67)	15	G.V. diesel	7,500	Shipbuilders	Uddevallavarvet
Jan. 22	"Albaro" Soc. Italiana di Nav.	*Bonassola* (1570)	Bulk carrier	19,200 (13,000)	531.33 × 68.5 × 43.25	15	Fiat diesel	8,400	Shipbuilders	Ansaldo S.A., Genoa
Jan. 24	Cie. Marocaine de Nav.	*Toubkal* (371)	Cargo	12,500 (8,530)	450.2 × 61.67 × (29.1)	14.25	Sulzer diesel	5,600	Werkspoor	N.V. Scheeps. en Mach. "De Biesbosch"
Jan. 25	A/S Ivarans Rederi	*Norholt* (158)	Cargo	12,200 (10,300)	476 × 66.25 × (29.1)	17.75	Diesel	11,200	Burmeister & Wain	Nakskov Skibs.
Jan. 25	Vereenigde Nederlandsche Scheeps. Mij.	*Simonskerk* (635)	Cargo	12,200 (10,000)	480(528.25) × 69 × 39(29.5)	18	9-cyl B & W diesel	11,250	Shipbuilders	P. Smit Jnr.

TRIAL TRIPS

Date	Shipowners	Ship's Name and/or Yard No.	Type	Tons d.w. (gross)	Dimensions (ft.) L.b.p.(o.a.) × B. × D.(dft.)	Speed (knots)	Propelling Machinery	Total h.p.	Engine Builders	Shipbuilders
Yards in Great Britain and Northern Ireland										
Jan. —	British India S.N. Co	*Bamora* (1612)	Cargo	7,500 (6,750)	395(462) × 59 × 32.5(25)	16	6-cyl B & W diesel	5,800	Shipbuilders	Harland & Wolff, Govan
Jan. —	British Transport Commission	*Catherine*	Pass. ferry	(214)	105(110) × 27 × 11.5(4.5)	9	6-cyl diesel	300	Lister Blackstone	Whites Shipyard (Southampton)
Jan. —	British Transport Commission	*Edith*	Pass. ferry	(214)	105(110) × 27 × 11.5(4.5)	9	6-cyl diesel	300	Lister Blackstone	Whites Shipyard (Southampton)
Jan. 27	Lowland Tanker Co	*Border Pele* (1893)	Tanker	19,600 (13,230)	535(569.2) × 72.5 × 41(31.58)	13.75	6-cyl Doxford diesel	7,200	Wallsend Slipway	Swan, Hunter, Wallsend
Jan. 30	Stephenson Clarke	*Fernhurst*	Coastal tanker	1,500 (1,400)	(229.67) × 40.67 × (14)	—	6-cyl diesel	—	British Polar	Blyth Dry Docks
Feb. 1	St. Denis Shipping Co	*Knightsgarth* (375)	Ore carrier	15,000 (10,750)	480(510.58) × 70.2 × (28.1)	12.5	4-cyl Doxford diesel	4,400	N.E. Marine	Blyth Dry Docks
Overseas Yards										
Dec. 5	Toho Kaiun K. and Nippon Yusen Kaisha	*Tobata Maru* (157)	Ore carrier	20,000 (13,400)	518.2(544.58) × 74.33 × 42.1	13.25	6-cyl M.A.N. diesel	6,500	Mitsubishi Yokohama	Nagoya S.B. Co
Dec. 8	Govt. of Indonesia	*Salajar* (159006)	Cargo	4,350 (2,965)	342.9(374.67) × 48.25 × 21.67(20.9)	14.5	8-cyl diesel	4,160	M.A.N.	Stocznia Szczecinska
Dec. 15	Hakusei Kisen Kaisha	*Hakusei Maru* (766)	Ore carrier	11,000 (7,300)	—	14.3	Diesel	6,000	—	Nippon Steel & Tube Co
Dec. 17	Anders Jahre & Co	*Jagona* (1095)	Bulk carrier	15,585 (11,000)	496(534.75) × 65.58 × 46.58(29.5)	15.9 (T)	7-cyl M.A.N. diesel	6,300	Shipbuilders	Kieler Howaldtswerke
Dec. 18	Maruni Shoksi Kaisha	*Taihaku Maru* (181)	Cargo	5,600 (3,900)	—	12.9	Diesel	3,200	Mitsubishi Hiroshima	Sanoyasu Dockyard
Dec. 19	Cie. Nantaise des Chargeurs de l'Ouest	*Penchateau* (149)	Bulk carrier	7,900 (5,300)	411.9(435) × 55.75 × 31.9(24.33)	14.5	6-cyl B & W diesel	5,400	Schneider	At. et Ch. de la Seine Maritime
Dec 20	Ernst Russ (Schulte & Bruns)	*Konsul Schulte* (519)	Cargo	16,600 (12,000)	493.67 × 66.25 × 44.25(32.1)	15.5	Diesel	8,150	M.A.N.	Lubecker Flender-Werke
Dec. 20	Nitto Shosen Kaisha	*Daiei Maru* (1516)	Tanker	47,500 (29,300)	698.9 × 100 × (37.2)	16	Geared turbine	17,600	Shipbuilders	Mitsubishi S.B. & E. Co, Nagasaki
Dec. 24	Inui Kisen K.K.	*Kenei Maru No 2* (654)	Cargo	5,500 (3,500)	334.33(359.42) × 50.5 × 26.9(21.25)	13.1	7-cyl B & W diesel	3,000	Shipbuilders	Mitsui S.B. & E. Co
Dec. 26	Mitsui Senpaku	*Takachisan Maru*	Cargo	4,650 (4,100)	337 × 51.1 × 26.67	14	B & W diesel	3,450	Mitsui S.B. & E. Co	Ishikawajima-Harima H.I., Tokyo
Dec. 28	Alora Shipping Co, Panama	*Paros* (781)	Bulk carrier	20,500 (14,000)	548 × 75.5 × (29.9)	16	Geared turbine	12,000	Shipbuilders	Ishikawajima-Harima H.I., Tokyo

MARITIME NEWS IN BRIEF

Sir Thomas Fearnley, head of the well-known Oslo firm of shipowners Fearnley & Eger, has died at the age of 81. He entered the firm in 1898 and became his father's partner in 1908. He became head of the firm in 1921 and was also a partner in Fearnley & Astrup. He was instrumental in the establishment of several important lines, both European and overseas. On several occasions he was delegated by the government to conduct important negotiations abroad, while he helped to start and build up many undertakings in other branches of industry.

Mr Sydney Porter has been appointed engineer commodore of the BP Tanker Company's fleet, following the retirement of Mr P. J. Hyde. Mr Porter, who served his engineering apprenticeship with the Wallsend Slipway & Engineering Co Ltd, joined the BP Tanker Co Ltd as a junior engineer officer in 1923. He was promoted chief engineer in 1939 and was appointed one of the company's senior post chief engineers in 1957. Mr Porter has served in supertankers since 1952 and is at present chief engineer of the flagship *British Queen*.

The death has occurred of the Helsingfors shipowner Henry Nielsen at the age of 68. Mr Nielsen became chief of the chartering department of Oy John Nurminen in Helsingfors, but later started shipowning in his own account in Finland, as Henry Nielsen Oy. This firm has three affiliated companies: AB Helsingfors Steamship Co Ltd, Oy Tank Tonnage and Rederibolaget Pulpships.

Mr A. E. Reddell has retired from the board of directors of Vickers-Armstrongs (Engineers) Ltd and as director-in-charge of the Weymouth works of that company.

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The death occurred on Sunday of Mr Lawrence Holt, who was a partner in Alfred Holt & Company from 1908 until his retirement in 1953. He was 78. Mr Holt will be remembered as one of the leading shipowners of his generation. He was a joint founder with Dr. Kurt Hahn, headmaster of Gordonstoun School, of the Outward Bound Sea School.

The death has occurred of Mr G. A. Brown, chairman and managing director of George Brown & Co (Marine) Ltd, Greenock. He was 71. Mr. Brown entered the family business as office boy in 1905 and became draughtsman and then manager and director. On the death of his father in 1932 he became managing director.

Mr G. C. Bartram has been appointed deputy managing director of Bartram & Sons Ltd, Sunderland. His father is Mr R. A. Bartram, who remains chairman and managing director. Mr G. C. Bartram joined the company in 1948 and was appointed a director in 1957.

The death has occurred in Australia of Captain B. J. Ohlson, a former commodore of the P & O Steam Navigation Co. He retired on pension in 1934, but was appointed to the Malta agency in 1935, a position be gave up in 1946.

Mr J. McWhinnie Armstrong has been appointed secretary of Dorman Long & Co Ltd in succession to Mr. R. S. H. Capes, who has retired.

Mr E. W. Lane has been appointed to deal with all aspects of the marine activities of Bloctube Controls Ltd. Mr J. B. Rodway has been apponted secretary of the company.

Captain F. W. J. Pearce, master of the P & O liner *Corfu*, is to retire.

Mr A. Threlfall has been appointed sales manager of Perkins Gas Turbines Ltd, Peterborough.

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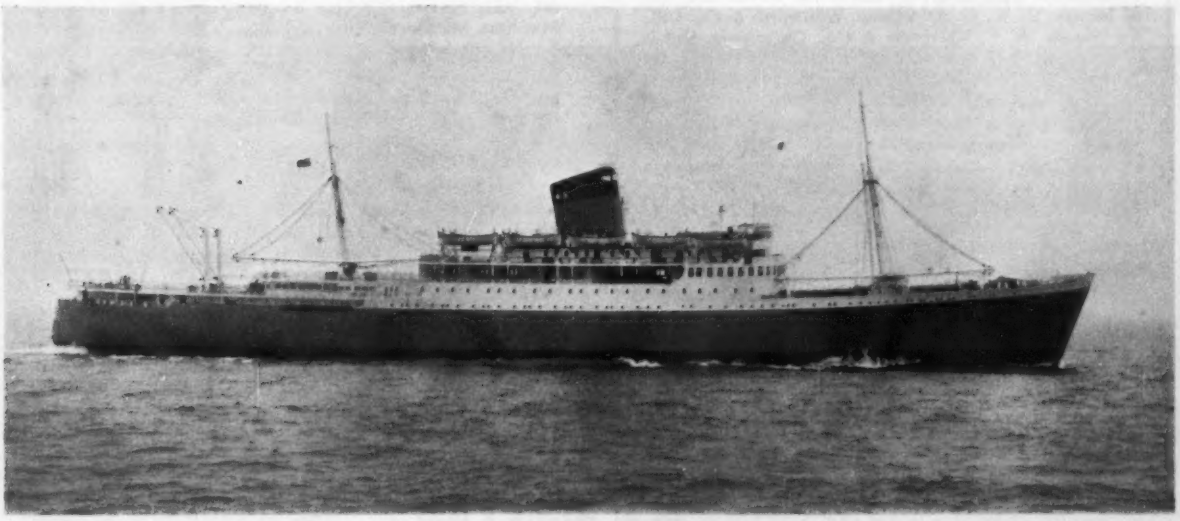
During 1960, 140,000 passengers were carried by vessels of the Italia Line on the three principal intercontinental routes of North America, Brazil-Plate and Central America-South Pacific—25,000 more than the previous year. A further 52,000 passengers made short European and American trips. Consequently, last year's figures show a total of 192,000 passengers carried. In 1960 the Italia Line once again held second place on the North Atlantic run, having carried to and from North America 98,300 passengers in 110 crossings. This is 11.37 per cent of the total sea traffic figures reached by the 30 European and American shipping companies at present using the route. The percentage for 1960 reached by the company is the highest since the war.

The Minister of State, Board of Trade, Mr Frederick Erroll, will open the Tenth Electrical Engineers Exhibition at 12 noon on March 21. Mr Erroll is a qualified electrical engineer, and before entering the Government was a director of several engineering and mining companies.

The Council of the Institute of Navigation has decided to offer an annual prize, to be known as the Under-thirty Prize, for the most notable paper to be submitted for publication by anyone under 30 years of age. The prize will be 25 guineas.



"NEW LOOK" FOR THE "RHODESIA CASTLE"

This view of the Union-Castle liner "Rhodesia Castle" shows the vessel after her recent reconditioning. She, and her sister ships "Braemar Castle" and "Kenya Castle" are being withdrawn at intervals for the installation of air conditioning equipment and the refitting of some of the cabin accommodation. The opportunity was taken to fit the liner with an extension to her funnel bringing it more into line with the funnel shapes of the latest members of the fleet

BEN LINE'S YOUNGEST MASTER

CAPT J. W. SHIELDS, until recently chief officer of the Ben Line heavy-lift ship "Benarty", has been appointed to his first command at the age of 32. Capt Shields, the Line's youngest master, has taken over the cargo-passenger liner "Bencleuch". He joined the company as a third officer in November 1949

MR J. V. C. MALCOLMSON, general manager of the Marine Department of Texaco Inc since 1954, has been elected a vice-president.

MR C. F. DICKSON, who has been a director of Crompton Parkinson since 1939, has been appointed a vice-chairman of the company.

MR E. RIX, a partner in the firm of Robert Rix & Sons, Hull, shipowners and shipbrokers, has died at the age of 79. He was a director of the Drypool Engineering & Dry Dock Co Ltd, and of the Hull Mutual Insurance Society.

MR E. BRERETON has been appointed a special director of the Superheater Co Ltd.

MR A. MILLER has been appointed technical sales manager, marine division, of Camrex Paints Ltd.

SIR JAMES MCNEILL, Sir William Wallace and Professor Andrew Robb have been elected honorary members of the Institution of Engineers & Shipbuilders in Scotland.

FIFTY YEARS AGO

From THE SHIPPING WORLD of 8 February 1911

Probably the largest sea-going steamer yet built on the Isherwood system of longitudinal framing now in service is the *Storstad*, which last week ran successful trials off the Tyne. She was built at the Walker shipyard of Messrs. Sir W. G. Armstrong, Whitworth & Co. Ltd., for Messrs. A. F. Klaveness & Co., Christiania. She is of the shelterdeck type. Length overall, 452 ft.; breadth extreme, 28 ft. 8 in.; with a deadweight carrying capacity of 10,650 tons. She is intended for the iron ore trade between Wabana, Newfoundland, and Sydney in Cape Breton, for which purpose extremely large hatches with special hoppers are arranged. The triple-expansion steam machinery was built by the North-Eastern Marine Engineering Co., Wallsend.

The comparatively large output of new tonnage from Clyde shipyards for January shows how quickly the industry is recovering from the bad effects of the labour dispute which paralysed trade during the latter part of 1910. The opening month of the year is always looked upon as one in which only a small amount of new tonnage is put into the water, nevertheless this year the output for January is larger than it has been since the boom in shipbuilding four years ago. The statistics for the past month show that 20 vessels of 24,330 tons were launched from Scottish shipyards, and of these 15 vessels of 23,540 tons were built on the Clyde. Quite a number of vessels have been launched since the beginning of the present month, and practically all the yards on the river are well supplied with work so that the outlook for the present year is decidedly good. In the steel trade the position is equally satisfactory.

RECENT SHIP SALES

CARGO STEAMER *Jag Janani* (ex-*Chepman*, ex-*London City*, ex-*Burhill*, ex-*Empire Grey*, 6,144 grt, 4,146 nrt, built South Shields 1944 by J. Readhead & Sons Ltd) sold by Great Eastern Shipping Co Ltd, Bombay, to Bombay shipbreakers.

Cargo steamer *State of Saurashtra* (ex-*Bombay*, ex-*Harmac Chemainus*, ex-*Louisbourg Park*, 7,217 grt, 4,267 nrt, built Vancouver 1944 by Burrard Dry Dock Co Ltd) sold by Eastern Shipping Corporation Ltd (Scindia S.N. Co Ltd), Bombay, to Bombay shipbreakers.

Cargo motor vessel *Asella* (ex-*Laponia*, 5,582 grt, 2,798 nrt, built Gothenburg 1922 by A/B Gotaverken) sold by Emil Hemmersam Reederei (Stern Linie), Lubeck, to Italian shipbreakers for £54,000. She had apparently previously been sold to Spain for demolition but the sale fell through.

Steam trawler *King Sol* (486 grt, 238 nrt, built Selby 1936 by Cochrane & Sons Ltd) sold by Rinovia Steam Fishing Co Ltd (J. R. Cobley), Grimsby, to Belgian shipbreakers for demolition at Bruges.

Cargo motorships *Daleby* and *Deerpool* (7,846 dwt, 5,160 grt, 2,500 nrt, each built in 1950 by Sir James Laing & Sons Ltd, Sunderland) sold by the Ropner Shipping Co Ltd and Pool Shipping Co Ltd, of which Sir R. Ropner & Co (Management) Ltd are managers, to Yugoslav buyers. They are reported to have realised about £35,000 each. The *Deerpool* is giving prompt delivery and the *Daleby* in March, UK/Continent.

Motor vessel *Coramba* (5,500 dwt, 3,551 grt, 1,926 nrt, built Sunderland 1948 by Short Brothers Ltd) sold by Australasian United Steam Navigation Co Ltd, Melbourne, to Hong Kong buyers for £160,000.

Motor vessel *African Prince* (9,366 dwt, 4,653 grt, 2,728 nrt, built Haverton Hill 1939 by Furness Shipbuilding Co Ltd) sold by Prince Line Ltd (Furness Withy & Co Ltd), London, to Mullion & Co Ltd, Hong Kong, for £87,500 with survey-due delivery.

Motor tanker *Shell Loader* (ex-*Shelbrit 2*, ex-*Thriftie*, ex-*British Thrift*, 690 dwt, 707 grt, 247 nrt, built Newcastle 1928 by Swan, Hunter & Wigham Richardson) sold by Shell Mex & BP Ltd, London, to foreign buyers believed to be Greek, and renamed *Amphitrite*.

Cargo steamer *Cadore Secondo* (ex-*Ninetto Gavarone*, ex-*James G. Maguire*, 10,874 dwt, 7,165 grt, 4,347 nrt, built Richmond, Cal., 1943 by Permanente Metals (Shipyard No 2) sold by Marigensa Marittima Genovese S.p.a., Genoa, to other Italian buyers for £110,000 with prompt delivery Genoa.

Tank steamer *Omiros* (ex-*Toorak*, ex-*Voco*, 8,627 grt, 5,205 nrt, built Port Glasgow 1927 by Lithgows Ltd) sold by Soc. Maritima Miraflores Ltda, Monrovia, to German shipbreakers for £14 per ton light displacement. She is laid up at Hamburg.

Cargo steamer *Ledbury* (ex-*Alpha Vaal*, ex-*Samdak*, launched as *John Russell Pope*, 10,940 dwt, 7,271 grt, 4,385 nrt, built Baltimore 1943 by Bethlehem Fairfield Shipyard) sold by Alexander Shipping Co Ltd (Houlder Brothers & Co Ltd), London, to Polish buyers and to be delivered on Tyneside.

Motor tanker *Windward Passage* (ex-*Raila*, 12,360 dwt, 8,310 grt, 4,917 nrt, built and engined at Gothenburg by A/B Gotaverken, launched 1940 and completed 1945) sold by Chagres Marine Corporation, Panama, to Norwegian buyers. She is idle at Bremen.

Steamer *Olav Asbjorn* (ex-*Jutta Dan*, ex-*Kingman*, ex-*Jutta*, 2,565 dwt, 1,612 grt, 839 nrt, built and engined Helsingor 1934 by Helsingors Jernsk. & Mask.) sold by Olav Line A/S (Ole Lauritzen), Copenhagen, to Italian buyers for £48,500 and to be renamed *Elvira*.

Twin-screw motor vessel *Else Basse* (ex-*Nordkap*, 8,140 dwt, 4,642 grt, 2,682 nrt, built Nakskov 1930 by Nakskovs Skibs A/S) sold by A. H. Basse Rederi (A/S Basse & Co), Copenhagen, to Bulgarian buyers for about £92,500 on credit terms.

Motor tanker *Carlshamn* (ex-*Brali*, 13,450 dwt, 8,612 grt, 5,103 nrt, built and engined Malmo by Kockums Mek. Verks., launched 1941 and completed 1945) sold by Rederiet for M/T Carlshamn (Sven Salen A/B), Stockholm, to Belgian shipbreakers. She arrived at Flushing on 17 November 1959 and has since been idle at Middelburg.

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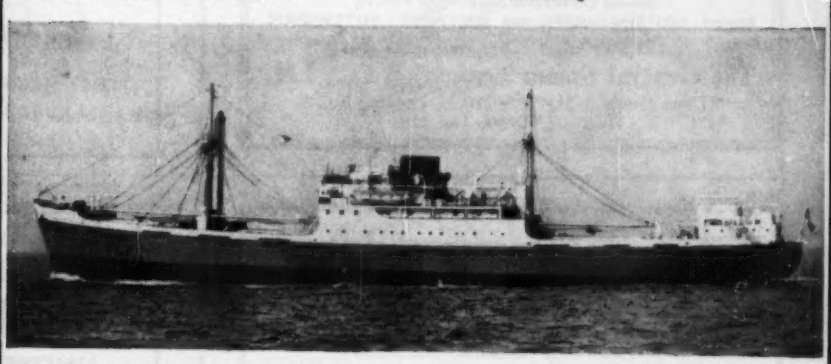
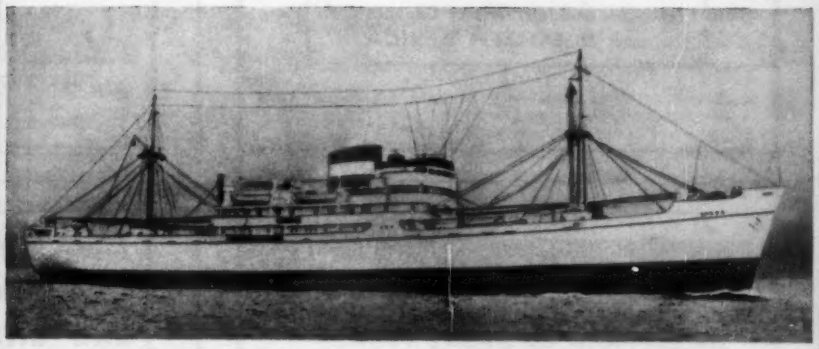
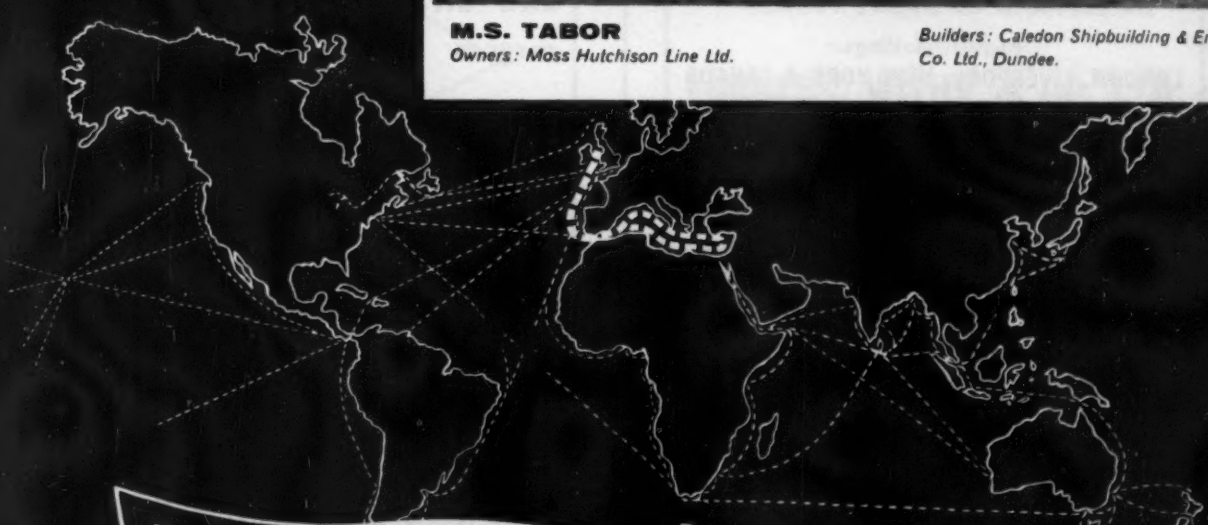
Builders: Nobiskrug Werft, Rendoburg.



M.V. CYPRIAN PRINCE
Owners: Prince Line Ltd.
Builders: Burntisland Shipbuilding Co. Ltd., Burntisland.



M.S. TABOR
Owners: Moss Hutchison Line Ltd.
Builders: Caledon Shipbuilding & Eng. Co. Ltd., Dundee.



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